JUL 12 1944

PAPER TRADE JOURNAL

JUNE 22, 1944

Established 1886

Knowledge

"Knowledge is the only fountain both of the love and the principles of human liberty."

DANIEL WEBSTER

Today our valiant forces fight on land, sea and air the world around to preserve the precious heritage of Freedom which is the very life-blood of America.

Paper has been an inestimable factor in developing and spreading the knowledge that has constantly advanced the frontiers of human liberty.

It will continue to transmit the thoughts and messages that will eventually break down the last remaining barriers to globe-wide Freedom.

GOTTESMAN & COMPANY

— INCORPORATED —

WOOD PULP

22 EAST 40th STREET NEW YORK 16, N. Y.

EUROPEAN OFFICES: Birger Jarlsgatan 8, Stockholm, Sweden

D

NOFOME
Approach Flow System

Follow Arrows in Drawing

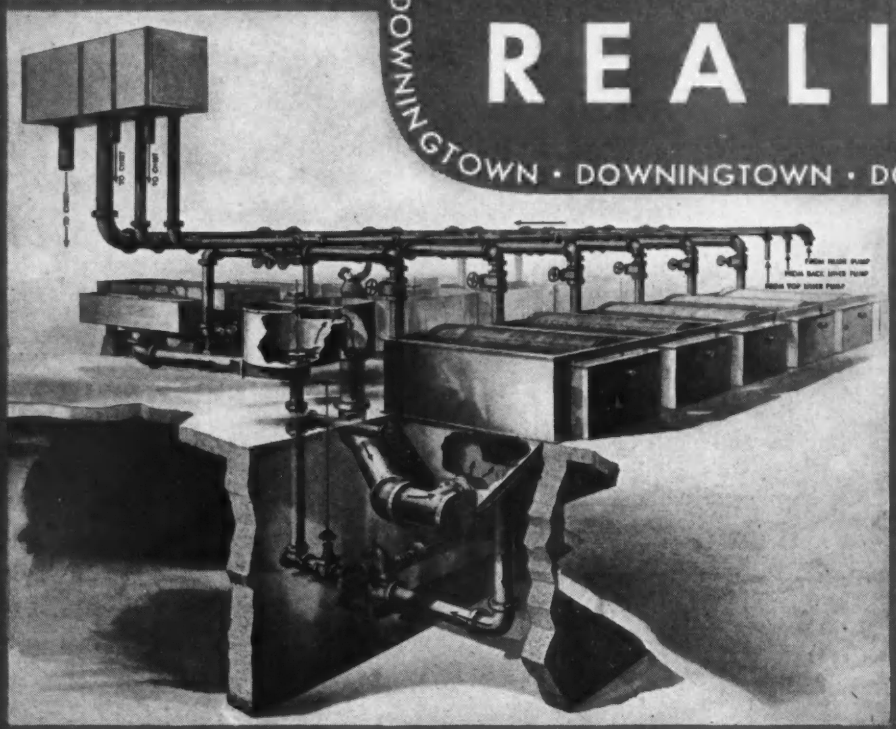
Liner and Filler Stock are circulated from the Stuff Chests (not shown) and through the three parallel overhead pipes to the Head Boxes, which overflow back to the Stuff Chests. Each Triplex Valve taps a controlled amount of stock from one of the three parallel pipes into each white water pipe going to each Screen, and from there to each Nofome Mix Box and Vat. White water from Vats is pumped two ways (1) to the Nofome Mix Boxes and (2) to the Screen as previously mentioned.

DOWNINGTOWN • DOWNINGTOWN • DOWNINGTOWN • DOWNINGTOWN • DOWNINGTOWN

A PRE-WAR
DREAM

Due to the war, many cylinder mills have not realized that what they have long hoped for has been completely developed and is in successful use. It's the Downingtown Nofome Approach Flow System which provides an inexpensive, foolproof method for getting the stock into the vats. It has many advantages long dreamed of, but now a reality. . . . Only about 5 minutes' time of one man is required to change grade. Liner or Filler may be fed into any vat for any exact pointage, by simply setting the indicator on each vat, like the last run of the grade desired. All control valves are within easy reach of the floor. No climbing ladders up under the roof. No scurrying around. No offweight board. Instead, higher production and higher quality. . . . May we tell you more? We believe then you'll want to include this in your Post-War Plans. . . . Downingtown Manufacturing Company, Downingtown, Pa.

A *POST-WAR
REALITY



*

Who knows? Possibly our Government will release the materials for improvements in paper mills sooner than you or we expect. Better start plans NOW for your Post-War Mill.

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.
Established 1872

Volume 118 Number 25

Published every Thursday by Lockwood Trade Journal Co., Inc.

Executive and Editorial Offices: 5 W. 47th St., New York 19, New York, U. S. A.

Tel. BRyant 9-0860 New York 19, N. Y.

GEO. S. MACDONALD
President

ARTHUR E. GORDON
Executive Vice-Pres.

JOSEPH P. HORGAN
Secretary

GEO. E. LOCKWOOD
Treasurer

HENRY J. BERGER
Editor

STILLMAN TAYLOR
Associate Editor

R. G. MACDONALD
"TAPPI" Editor

LYNN M. LAMM
Washington Correspondent
All of 15 W. 47th St.

Western Representative:
H. K. VINTON
123 West Madison St., Chicago, Ill.

Subscriptions: (Payable in advance) By the year $4.00; Single Copy 10 cents.
Postage Extra: To Canada $2.00; To Other Foreign Countries $3.50.
Member Audit Bureau of Circulations

PAPER *established Feb. 17, 1899, combined with* PAPER TRADE JOURNAL *Nov. 16, 1899.* PAPER *established Sept. 21, 1910, combined with* PAPER TRADE JOURNAL, *Feb. 19, 1925. All rights to the above titles reserved.*

PAPER TRADE JOURNAL *is entered as Second Class matter at the Post Office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. Publication Office of Lockwood Trade Journal Co., Inc., 34 N. Crystal St., East Stroudsburg, Pa. Printed in U. S. A.*

Copyright 1944 by the Lockwood Trade Journal Company, Inc. The contents of PAPER TRADE JOURNAL *including all articles, illustrations, etc., are covered by copyright and may not be reprinted except by permission.*

CONTENTS

JUNE 22, 1944

	PAGE
Announces Awards for U. S. Printing Office	7
Fire Destroys Office and Paper Stock	8
Kimberly-Clark to Celebrate "E" Award	8
Secy. Wickard Visits Forest Industry	8
Midwest Hopes Fourth Quarter Will Improve	10
Discuss Certain Goods Surpluses	10
F.B.I. Man to Speak to Salesmen	10
Adds New CPA Members	10
Plan Graphic Arts Course	10
Buys J. L. Paper Box Co.	10
The Factory of the Future	11
C. T. Haring to Direct C.E.D. Research	12
Obituary	12
No Cut in Book Paper Quotas Likely	15
Selecting Coal for Steam Plants	15
Financial News	16
Masonite Reports 44 Cents a Share	16
Decision Favors Abitibi Bondholders	16
Puget Sound Votes Dividend	16
New TAPPI Members	18
Important New Protection in Lovejoy Type "C" Coupling	18
Mill Inventories and Shipments	18
J. J. Schaefer Joins Wyandotte Chemicals Corporation	21
Pulpwood Drive Starts at Glens Falls, N. Y.	21
Mills Are Paying More for Pulpwood	21
Manhattan Gets Army-Navy "E" Renewal	21
New Type N Turbulaire Spray Drier	22
Experiment with Log Waste Salvage	22
Indianapolis Demand Heavy	22
Falk Corp. Gets Fourth Renewal	22
New Books of the Chemical Publishing Company	23
To Be Patent Attorney for Allis-Chalmers	23
Step-Valve Pump	23
Editorial	26
Fine and Book Papers	26
Concerned Over B. C. Pulp Reserves	27
Interprets Paper Container Order	27
Production Ratio Report	27
Paperboard Operating Ratios	27
Pulp Production for April	27
Visit American Writing Mills	27
Latest Market Review	40
Miscellaneous Markets	42
Market Quotations	42
Classified Advertising	46

Technical Section *("TAPPI")*

Outline for Analysis of a Facial Tissue Machine	29
The Economics of Waste Paper	32
TAPPI Notes	34
Machinery Used in Bleaching of Groundwood	35

PAPER TRADE JOURNAL IS INDEXED IN INDUSTRIAL ARTS INDEX

INDEX TO ADVERTISERS ON PAGE 52

West Virginia Pulp and Paper Company

230 Park Ave.
New York

35 East Wacker Drive
Chicago

Public Ledger Building
Philadelphia, Pa.

503 Market St.
San Francisco, Cal.

MILLS:
Mechanicville, New York
Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg Pennsylvania
Charleston, South Carolina

Manufacturers of
ENGLISH FINISH SUPERCALENDERED
MACHINE FINISHED BOOK
and LITHOGRAPHIC PAPERS
Offset Envelope, Bond, Writing, Mimeograph, Ledger
Eggshell, Cover and Music Papers, Index Bristol,
Post Card and Label Papers
HIGH GRADE COATED BOOK

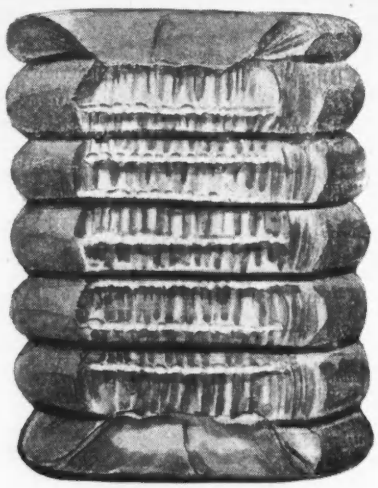
KRAFT WRAPPING AND KRAFT ENVELOPE
KRAFT LINER BOARD
BLEACHED SULPHITE AND SODA PULP
BLEACHED AND UNBLEACHED KRAFT PULP

TWO WARTIME ADVANCES *Invaluable in Peace*

• As you know, it was Napoleon Bonaparte's need for food protection that led to the development of the forerunner of today's indispensable tin cans.

Another wartime advance, promising a permanent peacetime future, is paper made from RAYCO Linter Cotton (selected, carefully graded cotton linters). Quality paper makers have been seriously handicapped by the wartime scarcity of cotton rags. Foreseeing this difficulty, The Railway Supply & Manufacturing Company placed its specialized cotton fiber experience and research findings at the disposal of paper manufacturers; and has helped prove that fine paper can be made from the long, virgin cotton fibers purposely left adhering to the cottonseed in the ginning process.

RAYCO Linter Cotton eliminates grading and sorting. It reduces both bleaching and cooking time. Labor costs are lowered. You have a stable supply of cotton fiber of uniform quality.



RAYCO LINTER COTTON

The Railway Supply & Manufacturing Company furnishes experienced chemists and fiber technicians to assist paper makers in adapting carefully graded linter cotton to their particular plant equipment in making their specific type and quality of paper. This service is being extended to interested paper makers, as rapidly as schedules will permit.

•

THE RAILWAY SUPPLY & MANUFACTURING CO.

AND AFFILIATES

General Offices: Cincinnati, Ohio

Plants at: FRANKLIN, OHIO • CHARLOTTE, N. C. • COVINGTON, TENN. • GREENSBORO, N. C.

Specialists in Grading, Marketing and Processing Cotton Fibers...

Vol. 118, No. 25

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

June 22, 1944

Announce Awards for U. S. Printing Office

Joint Congressional Committee On Printing Lets Contracts For Supplying the Government Printing Office With Paper For the Three Months Beginning July 1, 1944—Bids Were Opened June 12.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 19, 1944—The Joint Congressional Committee on Printing made awards today for paper for the next three months' supply of paper for the use of the Government Printing Office. The bids were received June 12. The awards were as follows:

No. 1. Marquette Paper Co. (600,000 pounds—ceiling price).

No. 2. Bermingham & Prosser Co., 5.38 cents (freight allowed to $0.40 cwt.).

No. 3. Marquette Paper Co., 7.98 cents.

No. 4. Barton, Duer & Koch Paper Co., 7.95 cents (1,000,000 pounds, lots 4 to 10).

No. 5. Barton, Duer & Koch Paper Co., 7.95 cents (1,000,000 pounds, lots 1 to 10).

No. 6. Perkins-Goodwin Co., 7.12 cents (1,150,000 pounds, lots 6, 7 and 8).

No. 7. Perkins-Goodwin Co., 7.12 cents (1,150,000 pounds, lots 6, 7 and 8).

No. 8. Marquette Paper Co., 7.19 cents total tonnage 750,000 pounds.

No. 9. Allied Paper Mills, 7.20 cents.

No. 10. No award.

No. 18. No bids.

No. 19. R. P. Andrews Paper Co., 8.69 cents (600,000 pounds); Paper Corp. of U. S., 8.69 cents (500,000 pounds); Central Ohio Paper Co., 8.70 cents (300,000 pounds).

No. 20. R. P. Andrews Paper Co., 7.56 cents (400,000 pounds); Whitaker Paper Co., 7.54 cents (400,000 pounds).

No. 22. No bids.

No. 23. Graham Paper Co., 8.67 cents.

No. 24. No bids.

No. 26. Whitaker Paper Co., 14.94 cents.

No. 27. No bids. No. 29, No bids. No. 33. No bids.

No. 34. R. P Andrews Paper Co., 7.33 cents.

No. 37. Barton, Duer & Koch Paper Co., 6.47 cents.

No. 38. Barton, Duer & Koch Paper Co., 7.04 cents.

No. 39. Barton, Duer & Koch Paper Co., 6.55 cents.

No. 41. No bids. No. 42. No bids. No. 43. No bids.

No. 44. Mead Sales Co., 5.80 cents (600,000 pounds); Old Dominion Paper Co., 5.748 cents (600,000 pounds).

No. 45. R. P. Andrews Paper Co., 6.88 cents (400,000 pounds); Whitaker Paper Co., 6.91 cents (400,000 pounds).

No. 46. No bids.

No. 47. Aetna Paper Co., 9.37 cents.

No. 48. D. L. Ward Co., 12.79 cents (125,000 pounds); R. P. Andrews, Paper Co., 12.83 cents (balance).

No. 49. No bids.

No. 50. Marquette Paper Co., 6.40 cents (400,000 pounds).

No. 51. Frank Parsons Paper Co., 6.40 cents (300,000 pounds); Barton, Duer & Koch Paper Co., 6.40 cents (500,000 pounds).

No. 52. No bids.

No. 55. Marquette Paper Co., 7.85 cents (900,000 pounds).

No. 56. R. P. Andrews Paper Co., 7.27 cents (1,000,000 pounds); Whitaker Paper Co., 7.44 cents (1,100,000 pounds); Barton, Duer & Koch Paper Co., 7.25 cents (500,000 pounds).

No. 57. Stanford Paper Co., 7.63 cents (500,000 pounds); Marquette Paper Co., 7.61 cents (500,000 pounds).

No. 58. R. P. Andrews Paper Co., 6.99 cents (500,000 pounds).

No. 59. Marquette Paper Co., 8.54 cents (No. 32), 8.09 cents (No. 36).

No. 60. No bids. No. 62. No bids.

No. 63. Paper Corp. of U. S., 13.75 cents (500,000 pounds)

No. 64. Barton, Duer & Koch Paper Co., 15.50 cents.

No. 65. Stanford Paper Co., 15.40 cents (No. 48), 15.30 cents (No. 56).

No. 66. No bids. No. 67. No bids.

No. 68. Franklin Research Co., 19.425 cents.

No. 69. No bids.

No. 70. Paper Corp. of U. S., 22.65 cents.

No. 71. Cauthorne Paper Co., 9.95 cents (300,000 pounds); Graham Paper Co., 9.95 cents (100,000 pounds).

No. 72. No bids.

No. 73. Graham Paper Co., 11.05 cents (100,000 pounds).

No. 75. No bids.

No. 76. Barton, Duer & Koch Paper Co., 18.00 cents (30,000 pounds); Old Dominion Paper Co., 17.979 cents (50,000 pounds).

No. 77. No bids.

No. 78. Barton, Duer & Koch Paper Co., 18.40 cents (80,000 pounds); Old Dominion Paper Co., 18.229 cents (50,000 pounds).

No. 84. No. bids. No. 85. No bids.

No. 101. Rejected. No. 102. Rejected. No. 103. Rejected. No. 104. Rejected.

(Continued on page 14)

Fire Destroys Office and Paper Stock

Loss and Damage At Mill of John Strange Paper Co. Estimated At $30,000 Or More In Waste Paper Alone — Kimberly-Clark To Celebrate "E" Award — Secy. Wickard Visits Forest Laboratory.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., June 19, 1944.—The John Strange Paper Company, Neenah, Wis., suffered its second serious loss within seven months Tuesday, June 13, when fire of undetermined origin destroyed the wood and stucco structure, built in 1917, housing the office and 1,200 tons of waste paper stock.

Fire departments from Appleton, Neenah, Oshkosh and Fond du Lac, Wis., helped the Menasha department battle the flames. Burning debris, threatening railway cars and other manufacturing buildings, was blown about the area by a heavy wind, but torrential rains followed almost immediately and helped the fire fighting crews protect other buildings.

Joseph H. Levandowski, assistant manager, said the following day that "It would be impossible to determine the loss at this time, but the value of stock alone could be estimated at $30,000 or more." It was believed that the general damage would be considerably larger than that sustained in the October 22, 1943, blaze, when the loss was placed at $75,000.

The Strange company, almost entirely on war contracts, produces cardboard for boxes and cartons. It has been operating under difficulties because of the critical shortage of waste paper. Thus the total loss of 1,200 tons of waste paper cannot be estimated on a dollars and cents basis, officials asserted.

Because some machinery, used in producing the type of paper the firm was making, was in the basement of the burned building, it will be necessary to make changes in the type of paper.

The fire was discovered shortly after 2 o'clock in the afternoon when smoke began to seep into the office quarters and the automatic sprinkling system went into action. Within 10 minutes of the fire's discovery, the second floor, where it is believed the fire originated, was an inferno which spread rapidly through the third and fourth floors.

Two switch engines were used during the early part of the fire to remove cars near loading platforms on either side of the burning building, which had a 50-foot frontage and extended 150 feet back along the canal and spur tracks.

The front section housed a recreation room and some storage space on the first floor, the offices and additional warehouse space on the second, with the third used for storage. The beater machines and engines are in the basement. The floors gave way early in the afternoon, crashing down on the beater machines and engines, but it is believed that the equipment will be salvaged.

All machines were expected to be in operation by Friday, June 16, and several were in use earlier.

Temporary offices were established in the Lux building at Menasha. Officials said they expect to occupy these quarters for about six months but plan to rebuild on the same spot as soon as possible.

Kimberly-Clark To Celebrate "E" Award

Brigadier General Albert J. Browning, General Staff Corps, Army Service Forces, Washington, D. C., will present the Army-Navy "E" award to employes of the Kimberly-Clark Corporation's Ordnance division on Tuesday, June 20, Walter Mumme, who is in charge of arrangements for the ceremony, announced last week.

The actual ceremony is to be held at 3:20 in the afternoon on the grounds of the Ordnance plant, formerly the Kimlark plant, if weather permits.

Ernst Mahler, executive vice president of the Kimberly-Clark Corporation, will be master of ceremonies for the program. Lieutenant Commander A. T. Samuelson, Manitowoc, Wis., United States Navy, will present the Army-Navy "E" pins, which the employes of the division will be privileged to wear in recognition of their service to the war effort.

Token pins will be received by seven employes: John Melzer, William Shinners, Valentine Strobl, Michael Verhagen, Walter Smith, Charles Behling and Helen Burr. Marie Van Himbergen will be the ring-bearer. Mr. Melzer, president of the Wall Paper Workers' Union, will accept the award for the employes.

The "E" pennant will be raised on the flag pole at the plant by the chief plant guards, Chris Deltgen and Frank Stanelle, Sr.

Cola G. Parker, president of Kimberly-Clark, will accept the Army-Navy "E" award from Brigadier General Browning during the ceremony.

The Maxson multiple anti-aircraft gun, mounts for which are made by the Kimberly-Clark Corporation's Ordnance division, went on display today as a feature of Menasha's fifth war loan drive. A demonstrator was on duty to show Menasha residents how to manipulate the gun and to permit them to discharge it, the gun being equipped with a type of noisemaker to simulate actual firing.

Secy. Wickard Visits Forest Industry

Secretary of Agriculture Claude Wickard and a group of federal forestry officials visited the United States Forest Products Laboratory at Madison, Wis., on June 14. The Laboratory has originated or helped in the development of many processes of importance to the paper and lumber industries. Its staff worked with the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., among the more recent developments, in the creation of "Consoweld," the new plastic which is used in planes of the Army Air Corps.

Secretary Wickard said he was highly gratified at the progress made in adapting wood to wartime uses and that the program had "large peacetime potentialities."

"I believe the nation will be astonished when all of the significant developments in this field can be revealed," he said. Discussions with the Laboratory staff were private because many of the new wood products still are in the category of military secrets.

Mr. Wickard was accompanied by E. I. Kotok, assistant chief of the United States Forest Service in charge of research; George W. Trayer, chief of the division of forest products, and J. Alfred Hall, consultant to the chief of the forest service.

In Sulphite-Mill Service

Cooper offers the experience of sixteen years in the application of stainless castings to the individual and special requirements of sulphite-mill service. There are Cooper stainless castings that were installed in 1928, and still in service. They stand up.

THE COOPER ALLOY FOUNDRY CO. • • • 145 Bloy St., Hillside, N. J.

THE *Cooper* ALLOY FOUNDRY CO.

THE *Only* ALLOY FOUNDRY WITH *All* THESE FACILITIES

- Laboratory control over raw materials and finished products.
- Dual foundry . . . both hand and machine molding.
- Electric arc and high-frequency-induction melting furnaces.
- Centrifugally-cast castings.
- Heat treating of castings up to six feet in size.
- X-ray and Gamma-ray inspection.
- Machine shop . . . specially equipped for finishing stainless steel.
- Improved cleaning . . . including Lustracast electrolytic finishing which leaves all surfaces bright.
- Castings furnished rough, polished or fully machined . . . one ounce to two tons.
- Development of special alloys to meet unusual requirements.
- Technical consulting service.

Midwest Hopes Fourth Quarter Will Improve

Current Quarter Outlook Is Discouraging But Higher Pulpwood Prices Are Expected To Bring Some Benefit—F.B.I. Men To Address Salesmen—Discusses Surplus Civilian Goods—Other News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., June 19, 1944.—There is little optimism in the Chicago area over the outlook for the third quarter. Earlier reports were that this quarter would show the heaviest drain and present news would certainly bear that out. However, there is a pronounced feeling that things will loosen up in the last quarter and that, in itself, is serving to keep the industry on at least a hopeful basis. Latest pulp allotments and various allocations have served to intensify the tightness of the market. The recent increases in pulpwood ceilings of $8.50 for all rough pulpwood produced in Illinois were expected to have some beneficial effect as were the increases in the central U. S. pulp areas. Whether the boosts are adequate enough to bring out more pulp and sufficient to partially overcome the manpower shortage remain to be seen.

Meanwhile, virtually all lines reported that the third quarter situation was serious with the new curbs on grade, weight, size, color and style intensifying the problem materially.

Discuss Certain Goods Surpluses

The paper market faced with a tremendous surplus of civilian goods now in the hands of the military, took a more optimistic view of the problem ahead after reviewing the speech made in Chicago on Wednesday, June 14, by Ernest L. Olrich, director of the Treasury Procurement Surplus War Property Division. Mr. Olrich addressed some 400 leading merchants of the city and, in his first public address since taking the important post, told his audience that the three major fears of businessmen—dumping of surpluses, refusal to listen to regular trade channels and protection of regular channels against speculative interests—were unfounded.

Mr. Olrich stated that there will be no "bargains" such as disrupted our economy after the last war and reiterated again and again the fact that a retailer's small volume will not bar him from buying surplus goods. "We shall restrict sales to regular channels of trade to the extent these channels desire to buy from us at a fair market price," Mr. Olrich said. There is much surplus that the paper trade has a definite interest in, according to the speaker, and it will be marketed out through regional offices with clear cut and helpful descriptions of the property to be sold and with every effort made to package the merchandise or present it in such a way that regular channels can afford to place their bids. He added that the man who feels he can pay an appreciably higher price than the rank and file because he sees an opportunity for a promotion will not be denied that opportunity "simply because some consider him a speculator."

F.B.I. Man To Speak to Salesmen

The western division of the Salesmen's Association of the Paper Industry held the first of its two summer golf outings on Friday, June 16, at the Park Ridge Country Club. Louis Ellis of the Northwest Paper Company, chairman of the golf committee of the SAPEYES was planning on a full attendance of salesmen and guests partly because of the popularity of the Club and because the season has been so curtailed because of over all War time conditions.

The western division is, as one sales representative pointed out, "going into it with its eyes open" on Monday, June 26 when the regular noon meeting at the Hotel Sherman will feature the speaking appearance of Albert G. Zimmerman, agent of the United States Secret Service, who will discuss "Counterfeiting" for the edification of the salesmen and their guests at the open meeting. Furthermore, the association will be treated to a moving picture "Know Your Money" with Mr. Zimmerman as the commentator. It is expected that the talk will cover the importance of paper making and marking in the apprehension of counterfeiters. According to "Pat" Patterson, Flambeau Paper Company, vice president of the western division, no "come at your own risk" sign has been hung out as yet.

Adds New CPA Members

The Chicago Paper Association, one of the fastest growing of the local organizations, has recently announced the acquisition of two new members, the Anle Paper Company and the Charles Paper Company. The announcement was given out by William Knox, president of the Association.

Plan Graphic Arts Course

While only in the embryonic stage, a movement which is expected to have a most stimulating and helpful effect in the graphic arts industry is slowly getting under way in Illinois. It is reported that the Graphic Arts Association of Chicago is taking the leadership in interesting the University of Illinois in the establishing of a graphic arts school at the University. The lack of a recognized school of this type, to provide an excellent and practical groundwork of knowledge on the development of printing and the most beneficial use of printing papers, has been noticeable in this area for some time.

Reports indicate that steps are being taken to interest Lieutenant Governor Hugh Cross and other State leaders in making a presentation to the Board of Trustees of the University. It is understood that the University very recently added a veterinary school to its curriculum and leaders in the graphic arts industry are inclined to believe that the importance of printing both to the economic welfare of the country and to the individual going into this field is at least on a par with the study of veterinary medicine.

Buys J. L. Paper Box Co.

[FROM OUR REGULAR CORRESPONDENT]

ATTLEBORO, Mass., June 19, 1944.—Edward A. Lavery, of North Attleboro, has bought the J. L. Paper Box Company, of that place. The plant will be operated under the same name by "Don" Morse, formerly of the Attleboro Box Company. The J. L. Paper Box Company manufactures a variety of set-up paper boxes.

The Factory of the Future

The H. K. Ferguson Company, industrial engineers and builders of Cleveland and New York, has made public its findings from a research study, conducted during the past year, on "The Factory of the Future."

"World War II has already made marks and stains on our production pattern. The Factory of the Future will be influenced by them.

"Nor will the transition be rapid; it will take years," it continues in explaining the approach to the problem. "But there are certain unalterable facts that are already clear—it has been our task in this study to project them into the future. We have taken our job seriously. We have used our imagination—but it has been engineered into down-to-earth terms of real buildings that can be built now!"

The report raises a number of questions in the design and construction of industrial facilities, and "the suggestions for the factory of the future have been guided almost on a single thought—to make the factory a community asset rather than a community liability."

Topics covered in the report include the coming importance of the air view of the factory, night architecture, benefits of the parkway approach to the plant, added conveniences for personnel, the interior treatment of the factory, boiler house improvements, and basic layouts for typical manufacturing plants.

The Air View

"The factory of the future will have a definite place in the air age of tomorrow," according to the study. "As air travel becomes more and more popular, the 'air view' will assume increasing importance. Particular emphasis will be placed on this concept by manufacturers of consumer products, who will, in the air age, have the distinct opportunity of presenting in a moment a vivid sales story that can last a lifetime.

"The 'factory from the air' therefore looms as an entirely new consideration in the approach toward designing the manufacturing and assembly plant of the future. It is a new 'elevation' that may be treated, perhaps in time, with the care of a front facade. Just what is the best method of presentation? Can it be done with isolated buildings? Do monitor or sawtooth roofs give the best air impression? Or, is there a new, untried layout best suited to do the super good-will job in the shortest possible time to potential customers traveling from five thousand to eight thousand feet above the ground?

Night Architecture

"Night architecture," according to the report by the Ferguson Company, "will require new treatment in the design of the factory of the future. We have already given negative thought to the problem in the construction of 'blackout' war plants. There is a positive approach."

The report points out that the appearance of a busy factory at night can have definite good-will advertising value, because a community takes pride in an attractive industrial development. As a result, a plant may become a community showplace rather than merely "the mill" or "the sweatshop."

The Parkway Approach

The section devoted to the parkway approach to the plant indicates that traffic handling is of major consideration in a good industrial relations program.

"The work week is becoming shorter for many reasons," it says. "Not unimportant among them is that employees want to get away from their work as much and as quickly as possible. They want easy access to their job sites in the morning—they want to sleep rather than waste half an hour parking and walking from their cars. Delays in coming to and going from a factory sometimes total several hours per week; it is not necessary. A parkway treatment of approaches to and from a plant can eliminate most of the wasted time.

"Workmen also should be able to park as closely as possible to their work locations in the plant. Most plants now have one large area for parking and it is not uncommon for an employee to walk a mile or more in inclement weather to get to his automobile."

The Personnel Department Is There To Stay

"Time has come for us to make up our minds that the 'personnel department,' representing 'extra' consideration for the employee, is here to stay," the report states. "Time has come, too, for us to realize the importance of employee morale and its value in dollars and cents to any management.

"Industrial relations' facilities have continued to increase since the early days of Samuel Gompers. But never at such an accelerated pace as during the past several years when employers found that they must 'sell' their jobs to prospective employees. Workmen go to plants where working conditions are better or where pay is markedly higher. Good workmen in the future will follow the same trend.

"Factories in the past have given the connotation of an armed camp. In wartime this is necessary for security reasons, but, for the peacetime plant, an appeal to workmen rather than a repulse should be present at the locale where they spend so much of their week. Barbed wire fences, armed guards at entrance gates, and other practices taken from the prison system, are hardly the psychological approach to make for a happy working community.

"The appearance of the woman in the assembly line has done, and will continue to do, more to offset these objectionable features than any other single influence. World War I put women in the office—and they stayed. World War II put them in the factory—they'll stay there too. The ratio of men to women in a plant will determine the extent of 'niceties.' We already have many examples in some of our newer industrial facilities.

"The 'change house' is one of them. Men are usually content to ride to and from their jobs in work clothes. In wartime, most women will also ride busses and street cars in slacks when they—and the public—know it is patriotic to work in factories. The Factory of the Future, however, will have another problem. The patriotic incentive will be gone. Women will ride to and from work dressed as women—not factory workers.

"Health centers already have an important place in the factory. They are relatively new, and the tendency is to expand rather than retract the services they offer. Nurseries and play areas for workers' children, and solariums for themselves, are in the offing. Shopping centers are another item for larger plants because

many women who work will still be responsible for a household, and working hours conflict with downtown shopping hours."

"Hospital Clean" Interiors

"The interior of the factory of the future will be 'hospital clean'," the report continues. "There will be clear, wide, unobstructed floor space which lends itself to any adaptations in equipment. Walls and ceilings will be flush. Connections to machines will come from underground service tunnels which also carry piping and conduit. Air conditioning and dust collecting equipment will maintain healthful climatic and atmospheric conditions at all times, with a proper differential between inside and outside temperatures.

"Lighting techniques will always furnish a topic for discussion in factory planning. Most controversial issue today is 'blackout' plants versus conventional plants with windows. In a few specialized processes, windowless factories are ideal; for average manufacturing and assembly, they are unnatural. Workmen complain of claustrophobia, and usually this complaint has an effect on their productivity.

"Windows have a twofold purpose in a factory building: to bring in light and ventilation, and to remove the 'cooped' up feeling of workmen in windowless structures. Window sash has been far from ideal in the past. Light metals introduced by the war should help alter this situation, and wide, clean spans of glass may soon replace the small window panes that neither bring in maximum light nor embellish the outward appearance of the structure.

"Noise is probably the greatest single distraction to workmen," according to the study. "Most of it is unnecessary. In the future, windows and walls will be inclined to deflect sound waves upward to an acoustical ceiling. Especially noisy operations will be conducted in soundproof rooms and foundations for such equipment as testing blocks and punch presses will be isolated."

The report forecasts improvements in floor construction and predicts for the future a plastic which may be applied easily and give life-long wearing surface. Innovations are expected also in doors, and particular attention will be given to colors of floors, machinery, and walls in the plant. Another desirable improvement is a system of underground conveyors for removal of scrap and waste.

Elimination of Smoke

In discussing boiler houses, the report states that smoke is one of the principal causes for the dreary, dirty industrial fringe around most American cities.

The report predicts the elimination of the boiler house as we know it today, and the substitution in its place of a source of power and heat which is clean, as well as economical.

Plant Layout

"The layout of any industrial plant should be governed by the function to be performed," according to the study. "There are, however, certain fundamental principles that are incorporated in the design of any plant, and there, too, is a 'typical' plant for a 'typical' industry.

"The 'straight line production' principle has been probably the greatest single influence on design of modern plant facilities. The principle is sound, but we have not yet explored all the methods of using that principle to its utmost. Our great industrial buildings today are mammoth box-shaped objects, hundreds, even thousands of feet square. A person in the center of the plant loses all sight of an outside world. But, far more important than that, a massive area has a tendency to interlace the process through the building, rather than carry it straight through as originally intended.

"The Factory of the Future will be adapted to an integrated correlation of sub-assembly units into the main production line. There are many ways to achieve this goal; one is through the use of relatively small units that fit naturally into a complete working pattern. In time, the circle may even replace the rectangle as a basic form."

In introducing its report, The Ferguson Company pointed out that present-day costs were not considered in the preparation of the study.

"We are hardly naive enough to believe that a manufacturer will build the Factory of the Future soon," the foreword states. "We know that costs would be high; we would never recommend it for the present. Time is the only remedy for high costs—science teaches us relatively quickly how to produce more and better for less. We shall keep our faith in the trust that this will happen in the building industry."

Consideration has been given to both labor and management in the preparation of the study.

In its conclusion, the report says: "We have considered both labor and management. Our thought is that a happier workman is a more productive workman—that money spent for plant 'extras' is money invested rather than money wasted—investments with dividends of greater output, eventual lower unit costs, more harmonious labor relations."

The study was conducted under the active supervision of Egon Gerner, architect, and Guy B. Panero, mechanical engineer; both members of the Ferguson staff for a number of years.

C. E. Haring to Direct C.E.D. Research

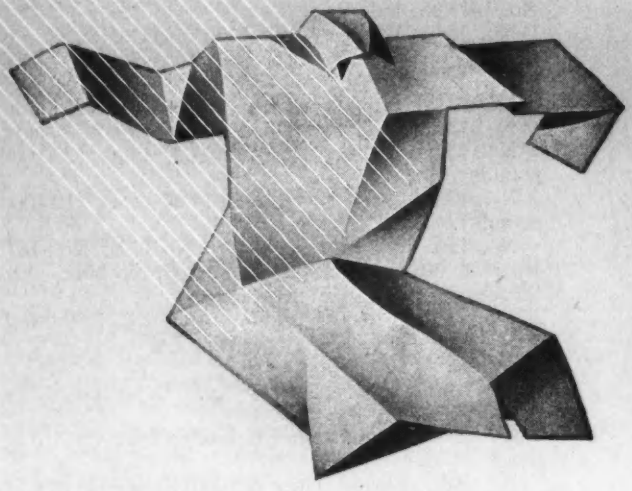
Chester E. Haring, former vice-president and director of marketing for Batten, Barton, Durstine & Osborn, and previously market research director for Fuller & Smith & Ross Advertising Agency, will assume active charge of the Postwar Marketing Research Project of the *Committee for Economic Development* beginning the week of June 20. The announcement was made by T. G. MacGowan, manager of the Marketing Research Department of Firestone Tire and Rubber Company, and chairman of the C.E.D. Marketing Committee.

Mr. MacGowan announced at the same time the appointment of J. L. Barrett as assistant director of the project. Mr. Barrett was until recently administrative engineer with the business engineering firm of George S. May of Chicago and New York.

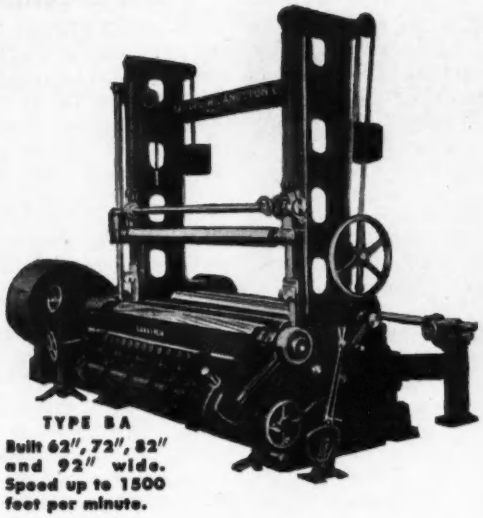
Ferdinand C. Wheeler, who was director of the C.E.D. project until compelled by illness to withdraw from active participation, remains as Marketing Consultant and member of the Committee. Mr. Wheeler is a former president of the New York Chapter of the American Marketing Association, and was in editorial charge of compiling the standard treatise, The Technique of Marketing Research.

The project is carrying on an analysis of postwar markets for between 400 and 600 finished goods products, based both on the projections of 62 product groups made by the U. S. Department of Commerce and on estimates by the leading businessmen in each of the categories analyzed.

They look like Grandpa's Nightgown!



The Dieppe raid proved the need for protection against Channel fog and mist. In that brief crossing, about five pounds of weight was added to each Commando through absorption of moisture. That handicap might jeopardize the success of full-scale invasion troops. So special invasion raincoats *made of paper* were developed. They look like grandpa's nightgown but will keep the soldiers dry and on even terms with the enemy.



TYPE BA
Built 62", 72", 82" and 92" wide. Speed up to 1500 feet per minute.

Will there be a market for these disposable paper raincoats, come peace? Quite probably. And that means a need right now, to anticipate your slitting and winding requirements (either new or replacement), for expanding post-war production. There is a Langston Slitter and Roll Winder designed to meet every need in mill, finishing room or converting plant. Let's get together soon.

SAMUEL M. LANGSTON COMPANY, Camden, New Jersey.

Langston *Slitters and Roll Winders*

ANNOUNCE AWARDS FOR U. S. PRINTING OFFICE

(Continued from page 7)

No. 105. Aetna Paper Co., 16.33 cents.
No. 106. Eastern Corp., 14.33 cents (620,000 pounds); Barton, Duer & Koch Paper Co., 14.55 cents (180,000 pounds).
No. 107. Aetna Paper Co., 14.33 cents (580,000 pounds).
No. 108. No award.
No. 109. No bids.
No. 110. Aetna Paper Co., 14.63 cents.
No. 111. No bids. No. 120. No bids. No. 121. No bids. No. 123. No bids. No. 125. No bids. No. 126. No bids. No. 128. No bids. No. 140. No bids. No. 141. No bids.
No. 151. Willcox-Walter Furlong Co., 8.28 cents (balance); Cauthorne Paper Co., 8.26 cents (200,000 pounds).
No. 152. Willcox-Walter-Furlong Co., 8.28 cents.
No. 153. Willcox-Walter-Furlong Co., 7.78 cents.
No. 154. Aetna Paper Co., 14.37 cents (200,000 pounds).
No. 155. Aetna Paper Co., 14.37 cents (100,000 pounds).
No. 156. No bids. No. 160. No bids. No. 161. No bids. No. 168. No bids. No. 169. No bids. No. 176. No bids. No. 177. No bids.
No. 183. Willcox-Walter-Furlong Co., 7.99 cents.
No. 184. Whitaker Paper Co., 7.67 cents.
No. 185. No bids.
No. 189. Barton, Duer & Koch Paper Co., 12.83 cents.
No. 190. Barton, Duer & Koch Paper Co., 13.83 cents.
No. 191. Barton, Duer & Koch Paper Co., 14.58 cents.
No. 192. Barton, Duer & Koch Paper Co., 13.96 cents.
No. 195. No bids.
No. 196. Barton, Duer & Koch Paper Co., 21.50 cents.
No. 201. No bids. No. 202, No bids.
No. 203. Whitaker Paper Co., 8.64 cents (100,000 pounds); R. P. Andrew Paper Co., 8.74 cents (balance).
No. 205. Whitaker Paper Co., 12.87 cents.
No. 208. No bids.
No. 209. Frank Parsons Paper Co., 4.75 cents.
No. 210. Whitaker Paper Co., 5.875 cents 4¾" rolls), 5.625 cents (5¾" and 7½" rolls).
No. 211. Perkins-Goodwin Co., 10.50 cents.
No. 213. No bids. No. 217. No bids. No. 218. No bids. No. 219. No bids. No. 252. No bids. No. 254. No bids. No. 255. No bids. No. 265. No bids.
No. 271. Perkins-Goodwin Co., 9.25 cents.
No. 276. Barton, Duer & Koch Paper Co., 8.50 cents.
No. 277. Barton, Duer & Koch Paper Co., 9.50 cents.
No. 280. Mudge Paper Co., 10.50 cents.
No. 281. No bids.
No. 302. Old Dominion Paper Co., $34.18 per M sheets.
No. 303. No bids. No. 304. No bids.
No. 305. Barton, Duer & Koch Paper Co., $42.79 per M sheets.
No. 306. No bids.
No. 307. Barton, Duer & Koch Paper Co., 6.79 cents.
No. 308. No bids. No. 309. No bids.
No. 325. Whitaker Paper Co., 6.15 cents.
No. 326. R. P. Andrews Paper Co., 6.17 cents (500,000 pounds); Whitaker Paper Co., 6.19 cents (500,000 pounds).
No. 327. R. P. Andrews Paper Co., 6.17 cents.
No. 351. Whitaker Paper Co., $7.04 per C sheets.
No. 352. Barton, Duer & Koch Paper Co., $18.85 per C sheets.
No. 360. No bids.
No. 366. Mathers-Lamm Paper Co., 4.165 cents.
No. 367. No bids.
No. 368. Consolidated Paper Co., 5.87 cents.
No. 369. Mead Sales Co., 3.90 cents.

Newspapers Use Less Paper

Daily newspapers reporting to the American Newspaper Publishers Association consumed 197,427 tons of newsprint paper in May 1944 compared with 248,255 tons in 1943 and 260,827 tons in 1941. This was a decrease in May 1944 under May 1943 of 20.5% and a decrease under May 1941 of 24.3%.

The total estimated newsprint consumption in the United States for May 1944 was 263,236 tons which includes all kinds of uses of newsprint paper. For the first five months of 1944, it was estimated to be 1,303,264 tons.

During the first five months of 1944 the reporting newspapers used 977,448 tons of newsprint, a decrease of 16.0% under the first five months of 1943, and a decrease of 20.2% under the first five months of 1941.

The stocks of newsprint paper on hand with newspapers reporting to the ANPA was 51 days' supply at the end of May 1944 which was an increase of 4 days' supply from 47 days on hand at the end of April 1944.

Dill & Collins Become Division

The Mead Corporation announces that as of June 10, 1944, Dill & Collins, Inc., of Philadelphia, Pa., which has been operated since 1932 as a subsidiary company, will become a division of the corporation.

This action will further simplify the capital structure of the Mead Corporation and facilitate the direction, operation and expansion of the Dill & Collins plant, thereby best serving the interests of its many customers.

The sale of Dill & Collins papers will continue under the direction of the Mead Sales Company, through its wholly owned subsidiary, Dill & Collins, Inc.

To Be Bleached Sulphate Mill

Owing to a typographical error in the issue of June 8, the product of the proposed mill to be erected by the Marathon Paper Mills of Canada, Ltd., at Everest, Ont., was incorrectly stated. This new plant is designed for the production of 250 tons daily of bleached sulphate pulp.

Obituary

Courtney Peters Winter Dead

CHAMBERSBURG, Pa., June 19, 1944.—Courtney Peters Winter, 56, widely recognized inventor, died unexpectedly of a heart attack at his home, 657 Philadelphia avenue, June 14.

Born January 14, 1888, at Hartford, Conn., Mr. Winter was associated for the past 35 years with Dunbar A. Rosenthal in the paper manufacturing business and for 20 years had been vice president and secretary of the U. S. Paper Mills, of which Mr. Rosenthal is president.

Mr. Winter's inventive genius was expressed chiefly in the design of folding machinery for the paper industry. He largely developed machinery of the Frens Corporation when it was organized here for the manufacture of sanitary merchandise and served as its president until the company, which was affiliated with the McKesson & Robbins Company, was acquired by Johnson & Johnson about five years ago.

An outstanding contribution of Mr. Winter to the war effort was a device enhancing the efficiency of mine harbor protection.

A son of the late Mahlon A. and Jerre Peters Winter, Mr. Winter is survived by his wife, Mrs. Marguerite A. Winter; a son and daughter, Mahlon A. Winter, Seattle, Wash., an engineer of the Glenn Martin Aircraft Corporation, and Mrs. Patricia Newhard, Washington, D. C.; a grandchild and his step-mother, Mrs. M. A. Winter, Washington.

Mr. Winter was a member of Central Presbyterian Church. He also held membership in the Lions Club, the Commercial Club, B. P. O. E. No. 600; King Solomon Lodge No. 31, F. & A. M., Albert Pike Consistory, and Almas Temple of the Shrine, all of Washington.

Arthur A. Scott

Arthur A. Scott died at St. Luke's Hospital, Cleveland, Ohio, after a serious illness. Mr. Scott was general superintendent of the paper and bag division of the Chase Bag Company, Chagrin Falls, Ohio. He was born in Montreal, P. Q., on October 9, 1889 and graduated as a master of science from McGill University. For nine years he was a physics instructor at McGill, following which he worked for the Abitibi Power and Paper Company, Anglo-Canadian Pulp and Paper Mills, Ltd. and Arthur D. Little, Inc. In 1924 he went to Chagrin Falls to work for the Adams Bag Company which subsequently became a part of the Chase Bag Company. Mr. Scott was a member of the Technical Association of the Pulp and Paper Industry since 1929. He is survived by his wife, Gertrude Hutchinson Scott and two sons, T/Sgt. Douglas E. Scott and Sgt. Robert W. Scott. J. E. Becker, plant manager of the Chase Bag Company comments, "We have lost a man who has contributed a great deal to the pulp and paper industry over the past years."

G. Harry Ellis

G. Harry Ellis, identified for more than 50 years with Carter, Rice & Co., Corporation, and for the last few years in charge of the wrapping paper department, died recently in Cambridge, Mass. A short time before his retirement some years ago, Mr. Ellis and others who had been with the company 50 years or more were given an honorary dinner.

No Cut in Book Paper Quotas Likely

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 21, 1944.—On the basis of military requirements as now scheduled, no substantial reduction is seen for third-quarter civilian allotments of paper for the printing and publishing industry, members of the WPB Printing and Publishing Labor Advisory committee were told at a recent meeting held in Washington this week.

The civilian paper allotments to printers and publishers have necessarily been reduced over a two-year period because of heavy military requirements for paper and pulpwood products. The shortage of paper for civilian use has been intensified further by manpower shortages in the woods and also by the lack of transportation and mechanized equipment to get logs out of the forests, according to WPB officials.

A slight increase in pulpwood output, especially in the southern forests, has been achieved by the use of approximately 7,000 Italian war prisoners. However, WPB Paper Division representatives told the Labor Advisory committee, correspondingly increased military demands for ammunition and for paper containers and wrappings have more than absorbed the increase.

The WPB representatives emphasized that the wastepaper salvage program in this country is rendered doubly necessary because there is no way of reclaiming thousands of tons of paper sent overseas in the form of shipping-containers for war goods.

The outlook for an increase in the production of graphic arts machinery is "not very bright," a WPB spokesman for the Printing Machinery Section of the Printing and Publishing Division said because of the large number of machinery manufacturers now occupied with war work. In the fourth quarter of 1943, a report showed that 86 per cent of the manufacturers were converted to war work.

A survey of the larger manufacturers showed that 85.8 per cent of their shipments were for equipment that can be classified as war-related, leaving only 14.2 per cent of their total output available as replacements of worn-out or broken-down machinery or for repair parts to keep badly worn machines in operation.

The printing equipment situation was reported by a WPB representative as relatively easy. Sufficient quantities of brass, copper and wood are on hand to meet the needs of the printing industry.

Selecting Coal for Steam Plants

In January the National Association of Purchasing Agents, 11 Park Place, New York, N. Y., issued a set of five forms for collecting information to be used in the selecting of coal for steam boiler plants.

A sixth form has now been issued which represents an analysis of the information collected on the other forms, gives the boiler plant limitations in respect to fuel, and shows the field in which coal selection may be made. This form was added on the recommendation of Dr. C. J. Potter, Deputy Solid Fuels Administrator, who stated that he expected the engineers that he is sending to power plants for improving economy and coal saving, to use these forms when making their surveys. He is urging all companies operating coal burning steam generators to compile the information called for by these forms and have it available when these conservation engineers arrive.

The forms may be reproduced by those who use them and specimen copies may be secured by applying to the National Association of Purchasing Agents.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending June 17, 1944

STOCKS

	High	Low	Last
A. P. W.	3¼	2⅞	3⅛
Armstrong Cork Co.	43	41⅛	43
Celotex Corp.	14½	13⅜	14½
Celotex Corp., pf.	17⅞	17¾	17¾
Certain-Teed Products Corp.	6⅛	5⅝	6¼
Certain-Teed Products Corp., pf.	69¾	64⅜	68⅝
Champion Paper & Fibre Co.	26	24¾	26
Champion Paper & Fibre Co., pf.	113	112	113
Congoleum Nairn Co.	28	24¾	26⅞
Container Corp. of America	25¾	24¾	25
Continental-Diamond Fibre Co.	12⅛	11	12
Crown-Zellerbach Co.	17½	17⅛	17½
Crown-Zellerbach Co., pf.	99⅞	99	99⅞
Dixie Cup Co.	17	16½	17
Dixie Cup Co.—A	45¾	45	45½
Flintkote Co.	25⅞	22½	25⅞
Flintkote Co., pf.	106¾	106¾	106¾
Robert Gair	4¼	3⅝	4¼
Robert Gair, pf.	15	14½	14⅞
International Paper Co.	17⅞	16⅝	17⅞
International Paper Co., pf.	83¼	80	82¾
Johns-Manville Corp.	99	93¾	98¾
Johns-Manville Corp., pf.	..	..	..
Kimberly-Clark Corp.	36½	36½	36½
Mac Andrews & Forbes	28	27¾	28
Mac Andrews & Forbes, pf.	..	..	..
Masonite Corp.	48¾	46¾	47
Mead Corp.	10¾	9⅞	10½
Mead Corp., pf. A-6%	..	..	..
Mead Corp., pf. B-5½%	81	80½	80½
National Container Corp.	17	16½	17
Paraffine Companies, Inc.	55½	54	55½
Paraffine Companies, Inc., pf.	..	..	..
Rayonier, Inc.	15⅞	15	15⅞
Rayonier, Inc., pf.	32	31¼	32
Ruberoid Co.	31½	29¾	31¼
Scott Paper Co.	42	39	41¼
Scott Paper Co., pf.	..	..	..
Sutherland Paper Co.	33	31½	33
Union Bag & Paper Corp.	11¾	11⅛	11½
United Paperboard Co.	5⅜	5	5⅜
U. S. Gypsum Co.	84	78	83¾
U. S. Gypsum Co., pf.	174¼	173	173¼
West Virginia Pulp & Paper Co.	23¾	20½	23⅜
West Virginia Pulp & Paper Co., pf.	107	107	107

BONDS

Abitibi Pulp & Paper Co 5s '53	79⅝	79	79½
Celotex Corp. 3¾s '55	103	103	103
Certain-Teed Products Corp. 5½s '48	102	100½	102
Champion Paper & Fibre Co. 4¾s '50	..	..	..
International Paper Co. 6s '55	108½	108	108½
International Paper Co. 5s '47	103⅞	103½	103½
Mead Corp. 3½s '53	..	..	..
West Virginia Pulp & Paper Co. 3s '54	..	..	..

New York Curb Exchange

High, Low and Last for Week Ending June 17, 1944

STOCKS

	High	Low	Last
Great Northern Paper Co.	35	34¼	34¾
Hummel-Ross Fibre Corp.	5⅞	5⅝	5⅝
St. Regis Paper Co.	5¼	4½	5
St. Regis Paper Co., pf.	160	155	157½
Taggart Corp.	6⅛	5⅝	6⅛

BONDS

American Writing Paper Co. 6s '61	100½	100½	100½

Masonite Reports 44 Cents a Share

The Masonite Corporation reports for the third quarter of three months ended May 31, 1944, net profits of $304,918 subject to final audit after all charges including income taxes. This is equal to 44 cents a share on the outstanding common stock of 600,000 shares, after providing for preferred dividends.

Profit before federal and state income taxes and contingent reserves amounts to $785,724. Provision for federal and state income taxes amounted to $398,806 of which $163,886 was for federal excess profits tax. In addition, provision was made for $82,000 taxable contingency reserve. Net sales for the quarter amounted to $4,473,218.

For the nine months ended May 31, 1944, net profits, subject to final audit, were $814,637, or $1.16 a share on the basis of present outstanding 600,000 shares of common stock after provision for preferred dividends. Profits before federal and state income taxes and contingent reserve were $3,007,715, out of which provision was made for contingent reserve of $301,000, and income taxes of $1,892,078 including excess profits tax of $1,150,886. Sales amounted to $13,236,863.

The comparative profits and provisions for the third quarter of the previous fiscal year were as follows:

Net profit was $244,320 equal to 34 cents a share recomputed on the basis of 600,000 shares of common stock, after provision for preferred dividends. Profit before provision for income taxes and contingent reserves was $1,427,769, out of which provision was made for contingent reserve of $107,000, and federal and state income taxes of $1,076,449, including $734,463 for federal excess profits tax. Sales amounted to $4,882,302. Net profit for the nine months ended May 31, 1943, was $847,749, or $1.22 a share recomputed on 600,000 shares of common stock outstanding. Profit before taxes and contingent reserve was $4,259,898, and sales were $13,926,241.

Decision Favors Abitibi Bondholders

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., June 19, 1944.—The gong has sounded to end another round in the great legal battle over the assets of the Abitibi Power and Paper Company, Ltd. This round was decidedly in favor of the bondholders. In the master's office at Osgoode Hall Mr. Justice R. A. Kellock, of Ontario Court of Appeals, in handing down his judgment on the motion of the liquidator for taking of accounts of the company, stated that he favored an accounting by Abitibi of what is due and owing by the company to the liquidator and the Montreal Trust Company and all holders of bonds secured by debenture and mortgages referred to in the writ of summons.

His lordship further finds that "there is a perfectly clear provision in the bond mortgage entitling holders of coupons at the contract rate of five per cent. per annum from their respective dates of maturity, out of the proceeds of the sale of the assets subject to the bond mortgage; that the bonds are made payable at the option of the holder in U. S. funds upon presentation at certain named places in the United States of America."

The judgement continues: "It follows that the credit to which the defendant company is entitled on the taking of the accounts in respect of moneys paid to the plaintiff on account of the principal under orders of the court will be, not the full amount of those payments in Canadian funds, but the amounts, respectively, by which the indebtedness outstanding on the bonds for principal would have been reduced had the receiver purchased American funds on the respective date and paid the proceeds to the plaintiff."

Mr. Justice Kellock says:

"In my opinion, the bondholders are not chargeable with any interest in respect to any money in the hands of the receiver."

Puget Sound Votes Dividend

The Puget Sound Pulp and Timber Company has declared a dividend of 25 cents a share on the common stock, and the regular quarterly dividend of 30 cents a share on the preferred stock, both payable July 1 to stockholders of record June 23, 1944. Including this payment, a total of 50 cents a share on the common stock has been declared or paid thus far in 1944.

Song of the Desert

No longer do the harsh overtones of sun and cactus, wind and boiling sun echo through the vast emptiness of the desert. Today orchards give a lush soliloquy to the muted voices of happy farm workers. The vibrant sun is now a friendly ally for the thirst quenching water. Lombard Irrigation Pumps have played their part in transforming death into life. Lombard Hydraulic Equipment is doing vital work in many fields.

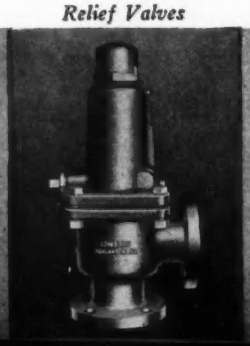
LOMBARD *Governor* **CORPORATION**

ASHLAND - MASSACHUSETTS

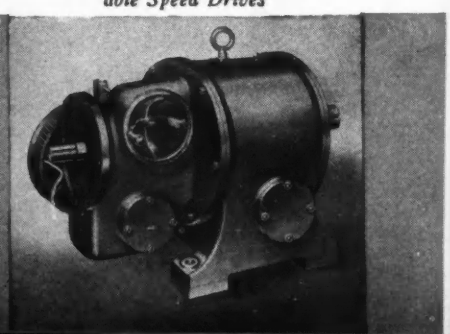
Sales Office: 60 East 42nd Street, New York 17, N. Y.

The Lombard Close-coupled Pump

Relief Valves



Compact, efficient Variable Speed Drives



New TAPPI Members

The executive committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

Charles S. Adams, Assistant Sales Manager, Rice Barton Corporation, 65 Tainter street, Worcester, Mass., a 1934 graduate of Worcester Polytechnic Institute.

Lester J. Beaulieu, Sr., Chemical Engineer, Central Paper Company, 2400 Lakeshore Drive, Muskegon, Mich.

Arthur J. Edward, superintendent, Technical Service Department, New Brunswick International Paper Company, Dalhousie, N. B., Canada, a 1920 graduate of McGill University.

William Elsevier, Special Analyst, Southern Kraft Div., of International Paper Company, Mobile, Alabama, a 1935 graduate of Spring Hill College.

Rowland A. Gale, technical representative, Wallerstein Company, Inc., 180 Madison avenue, New York, N. Y.

George K. Gibson, sales manager, Mosinee Paper Mills Company, 2307 Tribune Tower, Chicago, Ill.

Lt. Milton J. Gordon, Officers Mail Section, U. S. Army, Lowry Field, Colorado, a 1941 graduate of the New York State College of Forestry.

J. Barcham Green, managing director, Hayle Mill, Maidstone, Kent, England.

F. X. Guimond, control superintendent, Canadian International Paper Company, Gatineau, P. Q., Canada, a 1932 graduate of the University of New Brunswick.

Dr. Carl C. Kesler, Director of Research, Penick & Ford, Ltd., Inc., Cedar Rapids, Iowa, a 1926 graduate of the University of Pittsburgh.

Anders Ragnar Kjellgren, chemical engineer, The Institute of Paper Chemistry, Appleton, Wis., a 1940 graduate of Chalmers Technical Institute.

E. E. Litkenhous, Head, Department of Chemical Engineering, Vanderbilt University, Nashville, Tennessee, a 1934 graduate of Minnesota College.

Miss Wanda E. Malone, Assistant Chemist, Pollock Paper and Box Company, South Lamar at Alma street, Dallas, Tex.

Thomas L. Mayer, Head, Department of Technology, Buffalo Public Library, Lafayette Square, Buffalo, N. Y.

Miss Martha Meelig, Librarian, Moon Memorial Library, New York State College of Forestry, Syracuse, N. Y., a 1927 graduate of Syracuse University.

K. Maartmann Moe, consulting engineer, Elektrokemisk, 101 Park avenue, New York, New York, a 1907 graduate of Oslo Technical School.

Alexander H. Morris, chemical engineer, Union Bag & Paper Corporation, Savannah, Georgia, a 1939 graduate of Alabama Polytechnic Institute.

Robert F. Nelson, president, the Glassine Paper Company, West Conshohocken, Pennsylvania, a Commissioned Naval Engineer, U. S. Naval Academy, 1918.

Josef E. Ryberg, consultant, Chesapeake-Camp Corporation, Franklin, Virginia, a 1909 graduate of the University of Darmstadt.

Wilfred J. Schon, pulp mill foreman, Ontonagon Fibre Corporation, Ontonagon, Mich.

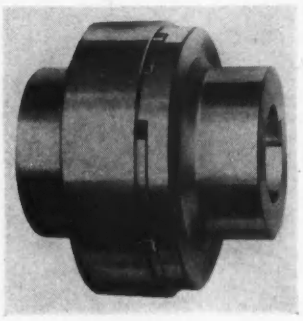
Charles A. Spoon, process chemist, Rayonier, Inc., Hoquiam, Wash., a 1939 graduate of the University of Washington.

Forestier Walker, research chemist, Lake St. John Power and Paper Company, Ltd., Dolbeau, P. Q., Canada, a 1937 graduate of McGill University.

John T. Ward, Chemist, Riegel Paper Corporation, Milford, New Jersey, a 1940 graduate of Lafayette College.

Important New Protection in Lovejoy Type "C" Coupling

Protection that secures operators against the catching of clothing, or incautious handling is embodied in the new L-R Type "C" shrouded flexible coupling announced by Lovejoy Flexible Coupling Company, 5009 West Lake street, Chicago 44, Ill.



The essential feature of this new protection is the outside steel collar which holds the load cushions in place. An extension of this collar which encircles the coupling, safeguards material and fingers from the heads of the bolts that secure the load cushion retainer. The boltheads are concealed, yet easily and conveniently reached when necessity arises.

This improvement effects more compact design with overall smoothness of external surface.

L-R Flexible Couplings of the Type "C" class are designed for heavy duty services from 4.60 to 806 h.p. at 100 rpm. Individual free-floating load cushions between the rugged jaws, are held in position between an inside steel sleeve, and the removable steel collar. Types are available for directly attaching to flywheel, also drum types and others for rapid disassembly without disturbing drive or driven equipment, etc. Cushions of various materials adapted to the particular service on which the coupling is used, are free to deform to every emergency—for correction of misalignment, protection from shock and vibration, and other transmission troubles which affect both drive and driven machinery. Smooth maximum power-flow is assured.

Cushions are always in sight. In operation half the cushions are idlers (except on reversing load). A new set of cushions is therefore always ready. No shutdowns for changing.

No lubrication is required. The coupling is outstandingly noiseless.

Literature and engineering information is now available on the new L-R Type "C" couplings on request to the manufacturer.

Mill Inventories and Shipments

WASHINGTON, D. C., June 21, 1944—In April the indexes of the value of paper mill shipments was 168 compared with 173 in March and 159 in April of last year taking any average month of 1939 at 100 according to the monthly survey of the Department of Commerce.

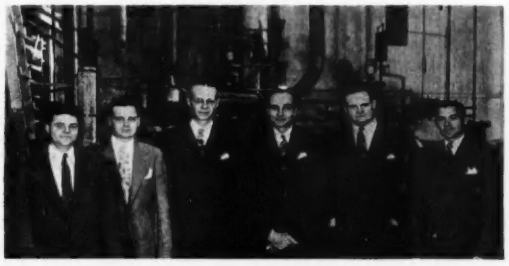
Indexes of the value of paper mill inventories in April was 139.1 compared with 136.1 for March and 138.6 for April of last year also taking an average month of 1939 at 100.

J. J. Schaefer Joins Wyandotte

The Wyandotte Chemicals Corporation has recently announced the formation of their new Development Department which will be headed by J. J. Schaefer.

About five years ago Wyandotte Chemicals Corporation embarked on an organic research program and the development of both organic and inorganic products will now be handled by this new department.

Mr. Schaefer is a graduate of the University of



EXECUTIVES INSPECT ORGANIC PILOT PLANT
Left to right, Dr. W. F. Waldeck and Dr. Thomas Vaughn of the Research Department, J. J. Schaefer, Director of Development and Lawrence D. Linke, his assistant, Howard F. Roderick, Director of Research, and Bert Cremers, Vice President in Charge of Sales, Michigan Alkali Division of Wyandotte Chemicals Corporation.

Dayton and the Massachusetts Institute of Technology. He was a member of the technical staff of Niacet Chemicals Corporation of Niagara Falls from 1928 to 1934. In 1934 he became Director of Research for Sharples Chemicals Incorporated and was a vice president of that company from 1936 until his recent resignation.

Mr. Schaefer is a member of the American Chemical Society, the American Institute of Chemical Engineers, and of the Chemists Club of New York.

The group picture printed herewith represents the research, development and sales executives of the Wyandotte Chemicals Corporation when they recently inspected the company's organic pilot plant.

Pulpwood Drive Starts at Glens Falls

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., June 19, 1944.—The annual pulpwood drive on the Hudson River, north of this city, is now under way with about 18,000 cords on the way to the mills at Finch, Pruyn & Co. Owing to the shortage of help in the woods the drive is only about half as large as last season when 28,000 cords were floated to the mills here. A number of Iroquois Indians from the reservation near the Canadian border are among the lumberjacks handling the drive which is scheduled to reach here about July 1. The timber was cut at the Newcomb area last summer, peeled and piled besides the streams during the winter and then toppled into the water in the spring. Cutting has already started for the 1945 drive with the labor shortage still seriously affecting operations. The company has been able to obtain only about fifty per cent of the normal number required in the lumber camps and the drive next year is expected to be smaller than usual. To make up for the decrease in the amount taken from its Newcomb camp the concern is cutting about 10,000 cords of pulp wood on timber holdings in Vermont and buying from private owners wherever possible in order that production at the mills will not be hampered. The company is not permitted to obtain timber from Canada because of government regulations.

Mills Paying More For Pulpwood

American farmers are reaping a rich harvest this year from their woodlands and are at the same time making a vital contribution to war production by cutting pulpwood for war and essential civilian needs, states the War Activities of the Pulpwood Consuming Industries.

Industrial estimates indicate that U. S. pulpwood consuming mills paid about $192,000,000 for 13,000,000 cords of domestically produced pulpwood last year and probably will pay close to $207,000,000 for 14,000,000 cords this year. While no accurate figures are available on the proportion of this pulpwood that will come from farm woodlands, a conservative estimate is 35%. That would mean that about $67,000,000 was paid for farm pulpwood in 1943 and at least $72,500,000 will be expended by mills for farm-produced pulpwood this year if the War Production Board's goal is reached.

Even before the war 38% of the nation's pulpwood came from farm woodlands, and in the South the proportion was 55%. While no wartime figures are available, all authorities agree that the percentage of pulpwood coming off of farm woodlands has increased since Pearl Harbor.

At the outset of the Victory Pulpwood Campaign the War Food Administration estimated that three and a half million farms in this country have marketable forest products. Other Department of Agriculture experts have since estimated that there are 139,000,000 acres of farm woodlands.

In some sections of the country woodlands may represent half of a farmer's acreage. In South Atlantic states, for example, the average farm woodland comprises 40 acres. In New England it is 53 acres, while in the South Central states the average is 42 acres.

Farm-produced pulpwood has become increasingly important as the manpower shortage cut into the number of organized crews of woodsmen. The Government and industry have looked to the farmer and the farm woodlot to provide the pulpwood necessary to keep war needs supplied.

Manhattan Gets Army-Navy "E" Renewal

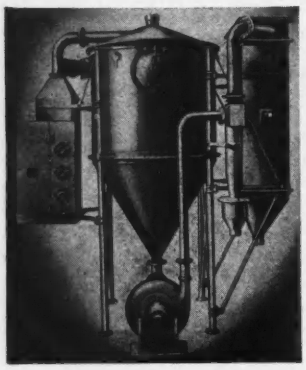
Word that its Army-Navy "E" award for meritorious service on the production front has been renewed, was received by employees of The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., Passaic, N. J., in a letter from Robert P. Patterson, Under Secretary of War.

The company was presented the original award giving it the right to display the Army-Navy "E" burgee on October 28,1943, the Fiftieth Anniversary of its founding. The White Star, which the renewal adds to the burgee, signifies that Manhattan employees have continued to maintain the high production standard which won the original award, and it is a symbol of appreciation from the Armed Forces for Manhattan employees' continued and determined effort and patriotism.

The Manhattan Rubber Manufacturing Division makes hose for fuel, oil hydraulic controls and instruments on aircraft, and brake lining for all types of fighter planes and bombers; also, rubber aviation engine mounts for isolating vibration and a long line of engineered products for war equipment and vital industries.

New Type N Turbulaire Spray Drier

To meet an increasing demand for an inexpensive small-capacity spray dryer for the commercial drying of high value products, for use in laboratory research, and in pilot plant operation on specific materials, Western Precipitation Corporation of Los Angeles has announced development of the Type N Turbulaire Spray Drier.



This versatile unit offers a number of important advantages for drying products such as fine chemicals and pharmaceuticals, and for investigation of spray drying problems. It is furnished in black iron, stainless steel or other alloys, and standard equipment includes electric heater, 4 foot desiccator with cone bottom and hand-operated mechanism for sweeping surface accumulations from the conical section, Multiclone collector, fan, bag house and control instruments mounted on a single frame for maximum compactness and ease of installation. Only electrical, compressed air and feed line connections need be made, and the complete assembly occupies a floor space of only 5 feet by 9 feet 8 inches, with a headroom of about 10 feet 6 inches.

Maximum operating flexibility of the Type N Drier is gained by means of optional heaters—either direct or indirect types—and other equipment designed to meet the special needs and facilities encounterd in various applications. In addition, the desiccating chamber is provided with a secondary inlet for introducing tempering air at inlet temperature, or pre-cooled to any desired temperature. This permits investigation, for example, of the dryability of thermoplastic and heat sensitive materials as well as those having a tendency to case-harden. Other optional equipment includes a high efficiency air filter for use in processing pharmaceuticals, food products, etc. and sealed glass sight ports for inspection purposes.

The Type N Spray Drier is rated at an evaporation of 25 pounds of water per hour at an inlet-to-inlet temperature differential of 300° F. Varying conditions such as type of material handled, concentration of solids in the feed, etc. will, of course, cause this figure to vary well above or below the rated capacity.

Full details concerning the Type N Turbulaire Spray Drier can be obtained by writing direct to Western Precipitation Corporation, 1016 West Ninth street, Los Angeles 15, Cal.

Experiment with Log Waste Salvage

Considerable success has been achieved in the log waste salvage experiment which has been in progress for some time past at Ladysmith, Vancouver Island, B. C. This project has been carried out jointly by the Comox Logging and Railway Co. and the Powell River Company under the auspices of the Forestry Branch of the Provincial Government. One of the chief problems encountered has been the development of special equipment for the handling of the small material faster and more economically than was possible using regular logging machinery. One step in solving this problem was the development of what is described as a "peanut-picker" and a midget "cherry-picker" for use in yarding operations. The second step was the development of a special loading device of the conveyor type, which was designed by Joe Cliff, foreman on the operations.

This conveyor-loader consists of four conveyor arms, 20 feet long, spaced 8 feet apart and mounted on a 40-foot sled. The conveyor chains receive their power from a Ford V-8 engine.

Small piles of salvaged log waste are roaded with a tractor and arch to the landing in front of the conveyor, and rolled down onto the chains, which elevate them and drop them on the waiting truck.

Owing to the great variety of log lengths being handled, it was necessary to build a bed on the logging trucks. Extra bunks are supported by two timber sticks, which are underslung from the two bunks on the truck and trailer. In order to build up a high load, side stakes have been attached to the ends of the bunks.

After loading is completed, three wires are placed around the whole truck load. This bundle (containing about 70 pieces) is dumped intact and is treated as a unit in making up the conventional flat boom. One 7-section boom, containing 60 bundles, has already been completed.

Cost data is not yet significant as the loading system is still in process of development, according to A. P. MacBean, assistant forester in charge of the Comox experiment for the Forest Branch, to whom we are indebted for the foregoing description of the process.

Indianapolis Demand Heavy

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., June 19, 1944—Demand for paper in this market is far beyond the ability of the trade to supply. All prices are at ceiling levels.

The waste paper situation is still serious. It is estimated that more than 4,000,000 pounds of uncollected waste paper is contained at the present time in local homes. Surrounding farms would increase this tonnage by a least half again. Although collections are increasing and the latest figures are encouraging, the executive committee of the victory waste paper campaign still is urging householders to turn in all waste paper to warehouses and other collection agencies.

The kraft situation here is critical. Local jobbers are faced with a problem they are finding no solution for. The demand for kraft is increasing and there is nothing apparently that can be done about it. Demand for tissues continued to rise last week. Toilet tissue shortage seems tc be a trifle less drastic than that for cleaning tissues. From all indications the larger chain stores have supplies on hand ample to care for ordinary needs of cleaning tissues, but the smaller stores dependent almost entirely on local jobbers, are finding it difficult to secure supplies. Many of the mills that formerly supplied local jobbers with cleaning tissues have converted to other manufacture and thus the local jobbers for the most part, are out of luck.

Falk Corp. Gets Fourth Renewal

The Falk Corporation, Milwaukee, Wis., has recently been granted a fourth renewal of the Navy "E" Award. With this Award goes the privilege of retaining the flag for a period of one year before being considered for the next renewal.

New Chemical Publishing Co. Books

The Chemical Publishing Company has recently issued two interesting books: Ancient and Medieval Dyes by William F. Leggett (94 pp. 5 x 7¾ price $2.25) and Standardization of Volumetric Solutions by R. B. Bradstreet (2nd ed. rev. 150 pp. 5¾ x 8¾ price $3.75). The former gives an entertaining description of vegetable dyes such as madder, indigo, saffron, logwood, etc., animal dyes as cochineal, lac and Tyrean purple and mineral dyes. It is not a text book but contains information giving the historical background and applications of a number of dyes. The book on volumetric standardization is a handy volume for chemists who want quick directions for making up solutions without having to refer to text books and carry out a series of calculations. It is not a book for the beginner since it presupposes a general knowledge and practice in analytical chemistry. Subjects covered include calibration of volumetric apparatus, indicators, standard solutions of acids and bases, precipitating reagents and oxidizing reagents. It gives equations involved in standardization, table of normal solutions, and other pertinent data.

Copies of these two books may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 E. 42nd street, New York 17, N. Y.

To Be Patent Attorney for Allis-Chalmers

John J. Kane has been appointed general patent attorney of the Allis-Chalmers Manufacturing Company, the company announced last month, succeeding George F. DeWein who resigned after 40 years in the Allis-Chalmers patent organization.

Mr. Kane has been with Allis-Chalmers since 1912, and in recent years has been engaged in general administrative work on patent matters, in addition to special work in the particular fields of electrical rotating machinery and agricultural harvesting equipment. He has degrees from the Worcester Polytechnic Institute, Georgetown and George Washington Universities, and was employed for a number of years in the United States Patent Office.

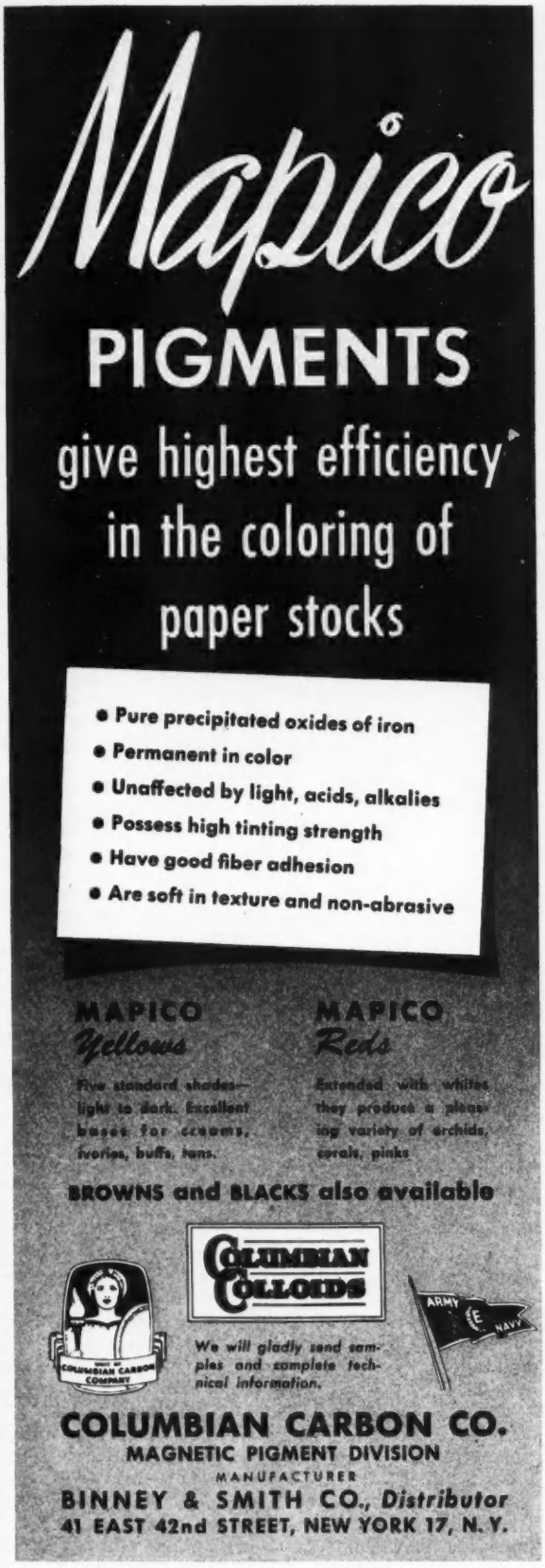
Mr. DeWein also served in the U. S. Patent Office before entering the Allis-Chalmers organization in 1904. Countless patent matters involved in the company's varied line of manufacture were conducted under his supervision up to the time of his retirement 40 years later.

Step-Valve Pump

Designed specifically for controlled volume pumping against negative differential pressures, this Milton Roy Step-Valve Pump retains all of the essential features of the Milton Roy double-ball check valve. Outside spring-loading provides ready adjustment for desired load. The single cover plate is readily removable and provides complete accessibility without disturbing intake or discharge piping. This valve affords complete freedom from air-binding. There is minimum restriction of passages since the pumped liquid moves in an almost straight line under the ball checks, not around them.

This type valve is available with Milton Roy Pumps in capacities from 10 g.p.h. up to 1300 g.p.h. and is supplied for pumping viscous materials such as liquid latex, acid sludges, tars and asphalts, salt slurries and textile fibres in suspension.

For more details, write Milton Roy Pumps, 1356 E. Mermaid avenue, Philadelphia, Pa.


Mapico
PIGMENTS
give highest efficiency in the coloring of paper stocks
• Pure precipitated oxides of iron
• Permanent in color
• Unaffected by light, acids, alkalies
• Possess high tinting strength
• Have good fiber adhesion
• Are soft in texture and non-abrasive
MAPICO Yellows
Five standard shades—light to dark. Excellent bases for creams, ivories, buffs, tans.
MAPICO Reds
Extended with whites they produce a pleasing variety of orchids, corals, pinks
BROWNS and BLACKS also available
COLUMBIAN COLLOIDS
We will gladly send samples and complete technical information.
ARMY E NAVY
COLUMBIAN CARBON CO.
MAGNETIC PIGMENT DIVISION
MANUFACTURER
BINNEY & SMITH CO., Distributor
41 EAST 42nd STREET, NEW YORK 17, N. Y.

C. W. Boyce Honored By Friends

Friends of Charles W. Boyce, for the last two years with the War Production Board, a former secretary of the Kraft Paper Association, and for eleven years executive secretary of the American Paper and Pulp Association, gave a dinner in his honor at the University Club, 1 West 54th street, New York, on June 14.

The dinner was informal and limited to about one hundred friends of Mr. Boyce, of whom seventy-five were present. Andrew Maish acted as toast master and Frank Baxter wrote appropriate songs for the occasion. "The Chanticleers Quartet" of the New York Glee Club rendered several vocal numbers. Harry Bennett was at the piano.

Mr. Boyce was presented with a wrist watch by his friends. His former associates in the War Production Board agency, presented him with a plaque bearing the names of Donald M. Nelson and other officials of that government agency.

The dinner committee consisted of the following: Frank H. Baxter, Philip O. Deitsch, Morris C. Dobrow, W. G. Leathers, Oliver M. Porter and Harry Roden.

The following guests were present: W. H. Anders, Nashua River Paper Company, East Pepperell, Mass.; Otis Angier, Angier Corporation, Framingham, Mass.; Frank H. Baxter, Frank H. Baxter Associates, New York; Roland P. Bliss, Envelope Manufacturers Association of America, New York; John J. Brossard, Container Corporation of America, Washington, D. C.; D. K. Brown, Neenah Paper Company, Neenah, Wis.; Downing Brown, Brown Company, New York; K. S. Bullard, Dennison Manufacturing Company, New York; T. J. Burke, Sulphite Paper Manufacturers Association, New York; B. R. Cancell, RR Retirement Bldg., War Production Board, Forest Products Bureau, Washington, D. C.; R. E. Canfield, Wise, Corlett & Canfield, New York; A. H. Chamberlain, New York; D. D. Coffin, C. H. Dexter & Sons, Inc., Windsor Locks, Conn.; G. C. Cook, Specialty Paper and Board Affiliates, New York; William W. Corlett, Wise, Corlett & Canfield, New York; John Cornell, The Paper Mill News, New York; Philip O. Deitsch, Gummed Industries Association, New York; M. C. Dobrow, Writing Paper Manufacturers Association, New York; F. E. Donovan, Specialty Converters, Inc., East Braintree, Mass.; J. F. Doyle, Arkett Safety Bag Company, New York; Edgar P. Eaton, Paper Stationery and Tablet Manufacturers Association, New York; Dernell Every, Kraft Paper Association, Inc., New York; Ross A. Fife, Tissue Association, New York; W. J. Garrity, Munising Paper Company, Chicago, Ill.; Joseph Gooch, Jr., Ticket and Coupon Council, New York; I. A. Hamer, Gilman Paper Company, New York; H. H. Hanson, W. C. Hamilton & Sons, Miquon, Pa.; E. G. Hapgood, Jr., Frank H. Baxter Associates, New York; John N. Hazen, Hazen Paper Company, Holyoke, Mass.; Roth F. Herrlinger, Deputy Director, Converted Paper Products Section, Paper Division, War Production Board, Washington, D. C.; T. Kennedy Heston, Kraft Paper Association, Inc., New York; Francis C. Heywood, The Marvellum Company, Holyoke, Mass.; William R. Keeger, The National Paper Box Manufacturers Association, Philadelphia, Pa.; Gardiner Lane, St. Regis Paper Company, New York; George P. Lee, Writing Paper Manufacturers Association, New York; Wm. R. Lenderking, vice-president, Lily Tulip Cup Corporation, New York; Kenneth D. Lozier, St. Regis Paper Company, New York; Mark Lund, Paper Napkin Association, New York; John MacLaurin, Sr., McLaurin-Jones Company, Brookfield, Mass.; R. S. Madden, Valley Paper Company, Holyoke, Mass.; R. A. Marsh, Dennison Manufacturing Company, Framingham, Mass.; O. F. Marquardt, 153 Spring street, New York; F. E. May, Rising Paper Company, Housatonic, Mass.; W. B. McGoldrick, Price & Pierce, Ltd., New York; C. R. McMillen, Chesapeake-Camp Corporation, New York; Frank Pocta, Paper Shipping Sack Manufacturers Association, New York; O. M. Porter, United States Pulp Producers Association, New York; J. L. Riegel, Riegel Paper Corporation, New York; J. L. Ritchie, American Paper and Pulp Association, New York; Harry E. Roden, The National Paper Box Supplies Association, New York; Albert E. Sawyer, New York; T. H. Shepherd, Assistant to the Chief, Special Industries Division, Bureau of Manpower Utilization, War Manpower Commission, Washington, D. C.; F. A. Stocker, Stocker Manufacturing Company, Netcong, N. J.; Arthur A. Thomas, Coated and Processed Paper Association, Providence, R. I.; E. W. Tinker, American Paper and Pulp Association, New York; Thomas Walden, New York; Howard Weeks, Dennison Manufacturing Company, Framingham, Mass.; Harold Willkie, Greenbay, Wis.; Arlo Wilson, The Society of Naval Architects and Marine Engineers, New York; Russell Winget, American Paper and Pulp Association, New York; Robert Ziegler, Crescent Paper Company, Indianapolis, Ind.; and J. D. Zink, Strathmore Paper Company, Springfield, Mass.

Simplifies Determination of Prices

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 21, 1944—Provisions for determining ceiling prices of manufacturers on 13 groups of converted paper products and industrial papers were simplified by the Office of Price Administration today.

This action effective June 24, 1944, will not result in any increase in prices. The changes, which were made after consultation with the various industries affected, are embodied in a revision of the converted paper products regulation.

Three simple methods are now provided for the establishment of ceilings. Formerly there were six methods. The greatest advantage will be in the pricing of new products. The method to be employed follows the pattern already employed for new products under the General Maximum Price Regulation. Prices established under the original converted paper products regulation are not required to be revised in accordance with the new provision, but may be continued in effect, OPA pointed out.

At the same time, crepe paper items, excluding those under the tissue paper products regulation, have been brought under the revised regulation. Previously they were under the General Maximum Price Regulation. Ceilings will not be changed as a result of this transfer.

Unprinted single weight crepe paper in folds is now listed in the ten foot length sizes now being manufactured. Dollar-and-cent ceilings for this paper, which represents a 14th group under the regulation, are established at ceiling levels in effect before a conservation program called for nine foot length sizes. Retail dollar-and-cent ceilings are also established on this crepe paper in the revised regulation;

they continue at unchanged levels. This particular paper comes under a separate appendix.

The 13 groups under the general appendix are conical milk bottles, certain sulphate and certain sulphite papers, certain tissue paper, crepe paper items, drinking straws, envelopes, glazed and fancy papers, gummed papers, paper cups and paper containers, sanitary closures and milk bottle caps, rope and jute papers; tags, pin tickets and marking machine tickets, and technical papers. Their ceilings are based on the highest prices charged in either October 1-15, 1941, or December 1-15, 1941.

Envelopes are included as previously within this regulation, OPA said, but a separate regulation for envelopes is in course of preparation.

OPA Rules on Groundwood Specialties

Individual adjustments may be made in manufacturers' price ceilings on groundwood specialty papers provided two conditions are met, the Office of Price Administration has announced.

The two conditions that must exist before adjustments are granted are: (1) The manufacturer requesting an adjustment is unable to maintain his production of the paper at the existing price ceiling, and (2) either continuance of his production is required to meet a military or essential civilian need, or loss of his production will force his customers to resort to higher priced sources of supply.

In any case where the papers are sold at retail, prices will remain "frozen" at the highest March 1942 price of each seller.

OPA said that the action, which became effective June 20, 1944, was taken because it appears that price ceilings in certain cases may threaten the continued production of these grades by some manufacturers. Heretofore no individual adjustments were possible in the ceiling prices of groundwood specialty papers under Maximum Price Regulation 449.

Vinyl Resins and Plastics

A new technical bulletin on its GEON vinyl resins and plastics for calender and solution processing has just been issued by the Chemical Division of the B. F. Goodrich Company and is now available upon request.

The bulletin describes the GEON vinyl chloride polymers and copolymers, in resin as well as plastic form, gives plasticizer and stabilizer tables for use in combination with the resins, discusses fillers and pigments, and lists typical formulations for the calender, spread or dip processes. The bulletin discusses mixing and milling, calendering and the general aspects of solution coating with the resins.

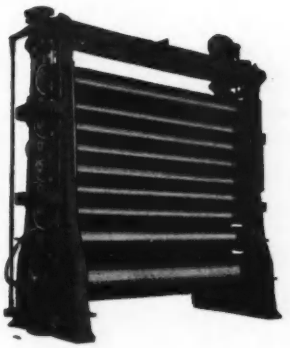
Correction

Through a typographical error in the third paragraph in the item headed "Mill Machinery Committee Reports," in the June 8 issue of the PAPER TRADE JOURNAL, the section number was incorrectly stated. The complete paragraph should read as follows: "The procedure for making quotations is covered by MPR-138, Section 1390.25A, paragraph (a) (4). To establish prices for new machinery, not manufactured in 1941, refer to MPR-136, Section 1390-13 and 1390.7 and use Form 694-722, copies of which are available at the nearest District Office of the Office of Price Administration."

NOMINATED...

AND ELECTED!

Running on the four plank platform of (1) low production costs (2) low maintenance costs (3) uniformly fine finish of paper (4) maximum out-put in minimum time . . . Lobdell Calender Stacks are the unanimous choice of over 300 modern paper mills.



Coupling accuracy with durability, these easily operated machines have roll lifts controlled from the floor either by hand ratchet, electric motor or hydraulic power.

Special automatic lubrication system or antifriction bearings insure peak performance continuously.

The new Lobdell catalog presents a detailed description of Lobdell Calender Stacks and other up-to-date machinery for the paper and allied industries. Write for a copy today — on your letterhead, please.

LOBDELL

COMPANY ESTAB. 1836 WILMINGTON 99, DEL.

Built and sustained upon the rights to Free, Competitive, Private Enterprise guaranteed by the Constitution of the United States

Rolls • Calender Stacks • Roll Calipers • New Improved Roll Grinding Machines

PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
Henry J. Berger, Editor

COMING EVENTS IN PAPER INDUSTRY

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

Chicago Professional Paper Group—First Monday of each month except July and August at Chicago, Ill.

FINE AND BOOK PAPERS

Fine paper production in the first quarter of 1944 aggregated about 243,000 tons, which was approximately 21,000 tons or 9% more than scheduled by the War Production Board. This compares with 259,000 tons, a decline of 6.9% from the first quarter of 1943. In its latest report available at this date, the Department of Commerce states that production in the second 1944 quarter was scheduled at the same level as for the first quarter, or 222,534 tons. To produce this tonnage the Forest Products Bureau authorized the use of 171,757 tons of wood pulp. This amount is 22,500 tons less than was provided for the first quarter. In allocating this pulp among the various mills, the Department states, it was decided that no mills excepting those manufacturing absolutely essential papers which cannot be produced elsewhere, be permitted to use more wood pulp in the production of fine paper than was authorized in the first quarter.

In the case of non-integrated mills producing no supplementary fiber, the report points out, with the above exception of essentiality such mills are authorized to use only enough wood pulp to maintain a maximum 4-day operation of presently employed machines. Such mills have an opportunity to increase their rate of operation, however, through the increased use of waste fibrous materials, or fillers, or by lowering the basis weight of their products. Integrated mills are directed to withhold and ship as market pulp a tonnage of wood pulp equivalent to 10% of the wood pulp they propose to produce and consume in the manufacture of fine papers. Such mills are further directed to withhold from use in the manufacture of fine paper, an additional 13% of the wood pulp they propose to produce and consume in the production of such papers.

The report also explains that it is the intention of the War Production Board subsequently to authorize these mills to use their withheld tonnage of 13% in the manufacture of certain types of paper that are needed to meet Program Determination 562, or, in the event this withheld tonnage of 13% is bleached or semi-bleached sulphate wood pulp, to require the mills to make this tonnage available as market pulp if the market supply of such pulp falls below the minimum required to fulfill the Program. Mills producing soda pulp, groundwood, or deinked waste are authorized to use wood pulp on the basis of approximately 40% long fiber to 60% short fiber or deinked waste in the production of all grades of fine paper, except carbonizing tissue, condenser tissue, and manifold. Each rag mill is authorized to use 5% less wood pulp than it was authorized to use during the first quarter of 1944. Certain mills, whose production of fine paper has been irregular and of small account in the mills' total output of paper, have not been authorized to use any wood pulp in the production of fine paper. The estimated average production and percentage distribution of fine paper sales by end-use, for the second 1944 quarter are: Government, 36.5%; Defense Plants 22.3%; Communications and Public Service, 19.4%; Agricultural, 4.1%; Civilian Manufacturers, 10.3%; Retail, 0.2%; Miscellaneous, 7.2%.

Book paper production in the first quarter of 1944 was about 372,000 tons; groundwood papers 147,000 tons. This compares with 1943 production in book papers of 409,000 tons, a decline of 9% in 1944. Groundwood papers held the same production ratio. The Department of Commerce reports that production was set, under Program Determination No. 509, at 344,196 tons for book papers, and 134,352 tons for groundwood papers. The increase in output over the amounts scheduled was made possible through the greater use of waste fibrous materials and fillers. Second quarter production for both types of paper was authorized at the same level as for the first quarter. Allocations of wood pulp to mills was in the ratio of 97% of the amount allocated for the first quarter, or 97% of the amount allocated in the last quarter of 1943. In allocating wood pulp and other paper-making fibers, provision was made to maintain a minimum operating rate in the mills of 4 days a week. Paper grants, totaling about 502 tons, were made to 16 magazine publishers by the War Production Board, during April. A new application form which will standardize methods of filing appeals for additional printing papers by commercial printers, has been completed. Heretofore, letters have been accepted, but as they seldom contained all the information required, the new application form has been adopted, the Department explains.

Since the first of the current year, the WPB Appeals Board has granted 585 requests, covering a total of 17,000 tons of paper. Last year nearly 85,000 tons were granted. The largest grants were made to printers who were producing continuous forms, such as multiple sets of paper used with carbons or other means of duplication, WPB officials said. These were used mostly in war operations. Approximately 50 appeals were pending, decision having been delayed because of inadequate information or through the process of consideration.

The estimated average monthly book paper produc-

tion and percentage of the distribution of sales by end-uses for the second 1944 quarter, are as follows: Government, 13.0%; Defense Plants, 7.4%; Communications and Public Service, 48.6%; Agricultural, 10.2%; Civilian Manufacturers, 9.4%; Retail, 0.4%; and Miscellaneous, 11.1%. On the basis of military requirements as now scheduled, a WPB release stated on June 15, that no substantial reduction is seen for the third quarter civilian allotments of paper for the printing and publishing industry. No further reduction, therefore, in the paper quotas for book publishing in the third quarter are anticipated.

Concerned Over B. C. Pulp Reserves

VANCOUVER, B. C., June 12, 1944—Reserves of pulp and paper in British Columbia may, it is feared, be seriously threatened by permission granted by Ottawa for the export to Puget Sound of 32,500,000 board feet of pulpwood.

With the manpower shortage making it difficult to build up stock piles of hemlock and balsam, the releasing of such a quantity of pulpwood to United States is not regarded with complacency in forestry circles.

It is thought by government officials in B. C. that the export will all be made from old crowngranted timber limits. The province has no control over these areas.

Logs cut from provincial timber leases, however, or more recent crown grants, are only exportable under licenses from the minister of lands. The policy in the past has been to exercise the greatest caution in granting such permits.

The 32,500,000 feet of logs will be made available for export, said David Rosenberry, assistant timber controller at Vancouver. The total is approximately the same as that exported last year.

It is understood that pulp mills in B. C. already hit by log shortage, will feet the stringency, much as they did last year.

It is felt that to a certain extent they are the sufferers from the desire of Ottawa to assist the United States war effort, to repay aid to Washington in other directions. The result, however, say some, is that the Canadian war effort will suffer in exactly the same proportion as the gain across the line by export of pulp logs.

Interprets Paper Container Order

Because of the critical paper shortage, the paper cup and container industry has been allotted the same paper tonnage as was used in the final quarter of 1943, a high quarter in the industry's production history, stated Dale H. Eckerman, executive director of the Paper Cup and Container Institute, in commenting on the new limitation order L336 issued by the War Production Board.

Mr. Eckerman pointed out, however, that even operating at capacity, the industry has been unable to fill many cup and container orders for essential war plants. To meet this condition and thus spread out cup production as far as possible, the War Production Board is limiting hot drink cup supply for present users to 80% of their average current monthly consumption of these critical hot drink cups. The purpose of this is to open up in-plant feeding to many more thousands of war workers.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1944		Corresponding Weeks—1943	
May 6	91.5	May 8	90.6
May 13	89.6	May 15	91.1
May 20	91.6	May 22	92.2
May 27	91.7	May 29	91.8
June 3	88.3	June 5	84.7
June 10	91.5	June 12	88.0

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1943	87.2	88.9	89.5	88.7	91.4	84.8	84.3
1944	89.6	89.6	90.1	89.5	*90.9*	...	...

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1943	91.0	88.3	89.6	89.6	82.0	87.8

COMPARATIVE YEARLY SUMMARIES

	1937	1938	1939	1940	1941	1942	1943	1944
Year to Date..	89.2	67.4	79.7	86.6	92.8	100.3	88.9	*90.2*
Year. Average.	79.8	71.5	83.4	85.6	97.4	90.4	87.8	...

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS †

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg
1938	56	63	63	60	60	59	59	69	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	83	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	95	82	72	68	75	76	81	82	77	84
1943	86	88	94	94	96	94	89	96	94	94	93	87	93
1944	90	96	95	96	96	..	..	..	..	..	..	..	..

Week ending May 6, 1944—98
Week ending May 13, 1944—95
Week ending May 20, 1944—97
Week ending May 27, 1944—96
Week ending June 3, 1944—93
Week ending June 10, 1944—*96*

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

Pulp Production for April

Domestic pulp production amounted to 755,000 tons in April, and to 3,062,000 tons in the first four months of 1944, in comparison with 777,000 tons in April, and 3,060,000 tons in the first four months of 1943, according to R. G. Stevenot, president, Puget Sound Pulp and Timber Company.

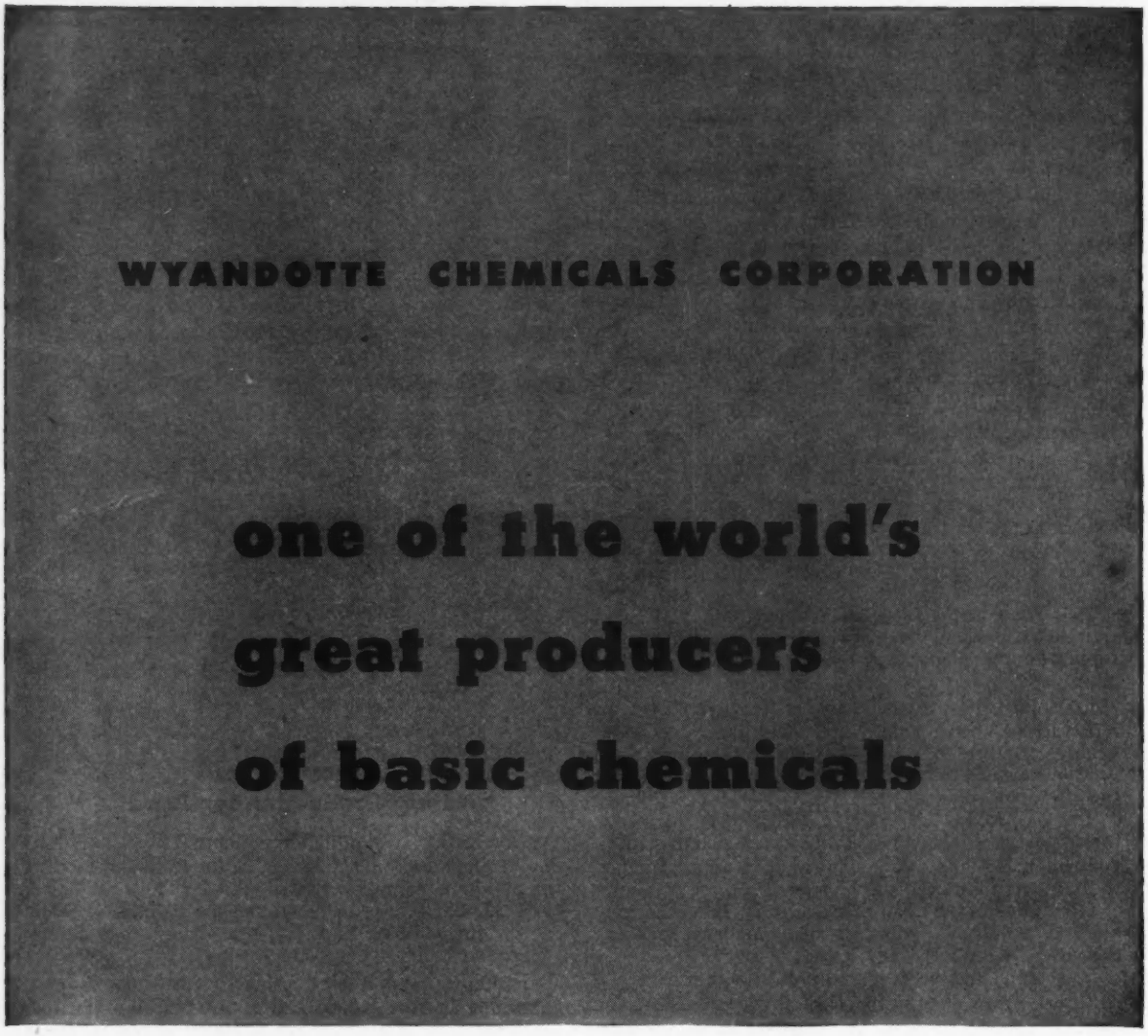
Including our import balance, total new supply provided in April amounted to 834,000 tons, against 859,000 and 3,394,000 tons respectively in the comparable periods of 1943.

New supply of mechanical pulp received in the first four months dropped from 641,000 tons in 1943 to 627,000 tons in 1944, and of chemical pulps from 2,752,000 tons to 2,726,000 tons.

"April records compare more unfavorably with the corresponding month of 1943 than any previous month this year," Mr. Stevenot said. "Production decrease of 22,000 tons in April was in contrast with 27,000 tons' increase in the first quarter. April decrease of 25,000 tons in total new supply was preceded by a decrease of only 9,000 tons in the first quarter."

J. F. Mitchell-Roberts Resigns

J. F. Mitchell-Roberts, manager of the Foreign and Export Division of Oliver United Filters, Inc., is resigning his position with the company. During the many years of this association, which dates back to 1920, his duties have taken him over most of the world in serving the metallurgical, chemical and process industries in connection with filtration and clarification problems.



CAUSTIC SODA • CALCIUM CHLORIDE
SODA ASH • CHLORINE • DRY ICE
BICARBONATE OF SODA • CALCIUM CARBONATE
AROMATIC INTERMEDIATES • HYDROGEN

Wyandotte
REG. U. S. PAT. OFF.

WYANDOTTE CHEMICALS CORPORATION • MICHIGAN ALKALI DIVISION • WYANDOTTE, MICH.

Section of the
TECHNICAL ASSOCIATION
OF THE PULP & PAPER INDUSTRY
122 E. 42nd St., New York 17, N. Y.
Edited by R. G. Macdonald, Secretary

Outline for Analysis of a Facial Tissue Machine*

By Allen A. Lowe[1]

Abstract

Without intending to develop more than an outline, a series of questions are presented which focus attention on the various points which must be considered in designing a modern facial tissue machine.

In this talk the facial tissue machine is analyzed to provide a basis for discussing debatable points and for suggesting successful solutions of the problems involved. Neither the writer or his company lays claim to knowing all there is to know about facial tissue machines. Our achievements in this field have been in the building of several machines which are making facial in excess of the speeds for which they were built. These machines are mainly of the fourdrinier type, and it is fourdrinier machines about which papermakers are most curious.

I hope that the discussion of the debatable or improvable points will take place here in this meeting. Certain of the machinery builders are under a handicap. They have built, in part to the specifications of the operators, some of the machines about which there is the most lively curiosity in the trade. They are naturally restrained by ethical consideration from discussing their customers' special skill in the manufacture of this particular grade.

The rest of us are at liberty to speculate about those improvements to the Yankee machine which might be likely to produce the best results in the manufacture of facial tissue. There is no perfect answer.

The only way to build the perfect paper machine for any grade is to follow the suggestions of some one papermaker exceptionally skilled in that trade. No paper machinery manufacturer is surprised if, when the papermaker dies or moves away, his successor is at least mildly critical of the details of the design.

This is true of the facial tissue machine now when many of its operators are seeking for improved quality and increased quantity. Many in the field are looking longingly at an expanding market, and would like to have the perfect machine built for them before they start. We would like to build some more facial machines, but we would like to be excused from undertaking to build the perfect one. We know two very good men in the field who only agree in the most general way on the details.

In this talk we will outline the problem, naming the points which are matters for debate, and we hope that the discussion will bring out the right answers.

We are not as vague on the subject of the design of a facial tissue machine as might be inferred from the following analysis. We feel that we have a design capable of successful operation which will answer most of the questions. But many, if not most, of the points we question are matters on which different successful and competent papermakers differ. We hope that somebody will declare himself on both sides of some of them.

Facial tissue is made on both fourdrinier and cylinder machines. I cannot say which came first—cylinder or fourdrinier tissue. By analogy from the toilet tissue field it is probable that the cylinder machine came first. There are a number of cylinder machines in operation. Several of them make a very good grade of product. From the point of view of their operating and sales organizations, their economics are sound. But the interest today is mainly in the fourdrinier machine, so we will study the fourdrinier.

Before we leave the cylinder machine altogether, it may be that there will be improvements in the general design of cylinder molds and vats and the making of paper thereon, which will put the cylinder machine back in competition with the fourdrinier. Those seeking to make facial in substantial quantities and at economical costs are largely interested in the fourdrinier.

Stock

The stock from which facial is made, and the manipulation of the machine by the skilled operator are greater factors in the production of a satisfactory product than the exact details of the machine. But there must be built into the machine, which is to make facial tissue, the possibility of changing its combinations, and these create the special requirements for such a machine.

I repeat that I am not going to try to give the answer to any of the problems which I pose. I am going to analyze the machine; to outline the places where greatest effect on the whole result is likely to occur.

*Presented at the meeting of the American Pulp and Paper Mill Superintendents Association, Edgewater Beach Hotel, Chicago, Ill., May 24-26, 1944.

[1]Field Engineer, Sandy Hill Iron & Brass Works, Hudson Falls, N. Y.

It Is hoped that you will supply out of your experience the answers which you believe to be valid, or make suggestions as to what might be tried, and that from this mass of information will come some ideas for improved design.

In another paper on this program the preparation of stock is to be discussed. It is hard to tell what proportion of the result achieved on the machine lies quite outside of the machine itself in the selection of the stock and its preparation. It may be one half of the sum and it might even be two thirds. Of course a machine to run 1500 feet a minute must be designed so it gives no mechanical trouble at that speed. But it certainly won't make facial itssue at 1500 feet a minute out of just any kind of stock.

Machine

At the consistencies at which facial is made the question of proper mixing, either ahead of an open pond, or when the stock is pumped to a hydraulic presure inlet, must be carefully considered. Successful operation of hydraulic pressure inlets makes it unlikely that the open pond of the tremendous height necessary for the slice opening pressure would be installed at a speed like 1500 feet per minute. However, where the merchandising and investment problem of the individual manufacturer warrants more moderate speeds, approach flow boxes will deaerate the stock satisfactorily and prevent the formation of concentration of fiber. The head on a pump supplying the hydraulic pressure inlet should be great enough to prevent the pump from taking air. The rate of flow through the pump might be a consideration here.

I confess to a most lively curiosity as to the nature of the pump which supplies the pressure inlet and the control of its drive so that the necessary variation of the nozzle pressure may be secured, and that pressure maintained within a reasonable degree. Perhaps at the head in inches of water required for a 1500 foot machine, a few inches of water variation of nozzle pressure makes no difference; and it may be that there is no such variation with the proper selection of a pump.

The type of the slice is the next consideration. There are offered to the trade at least two types of the nozzle slice. The hydraulic design of the slice is a matter of major importance in the manufacture of facial. However, facial is made at moderately high speeds, like 900 to 1000 feet, with quite ordinary standard high-pressure inlets.

The location of this nozzle ahead of the center line of the breast roll, and the relation of the line of direction of the jet emerging from the nozzle to the plane of the wire are matters for speculation. Perhaps a design of inlet nozzle adjustable in section and also adjustable in location in respect both to the plane of the wire and to the center line of the breast roll is desirable at high machine speeds and consequent high nozzle discharge velocities.

Even with a high speed of discharge at the nozzle to provide intermingling currents to continue the formation of the sheet some distance down the wire table, the perforated or distributor roll, especially in a pressure slice, its direction of rotation and its speed of rotation are matters for speculation. Direction of rotation and speed may be determined by each papermaker for himself with a variable drive and by reversing the motor.

At this point, except for speculation on how long the wire forming table is to be, the formation of the sheet is done.

The paper manufacturer who controls the source of his pulp or pulps will arrive most quickly at reasonably narrow limits for his stock preparation, method of mixing, deaeration, method of delivery to the pond or pressure inlet, pressure at the nozzle in relation to the wire speed, location of the nozzle, and pond consistency—to name the factors which come most quickly to the mind. In the case of some of these factors he will be able to establish them without need for variation—assuming that pulp mill conditions are controlled within reasonable limits too.

The manufacturer who purchases pulp will have most need for adjustments. In spite of stock preparation control and modern instrumentation, he may come to the point where his stock preparation will only help him part way in adjustment to a strange pulp and then the ability to adjust his formation factors will be of enormous value.

Multiplying points of adjustment on a paper machine increases the operation hazards. The operator who uses his own pulp, or has a fixed and controllable source of supply, will be able to eliminate some adjustments. The purchaser of pulp must be more flexible and must rely on his mill discipline to eliminate thoughtless "tinkering."

From this point on it is desirable to make the machine as simple as possible. On a machine designed structurally for operation at the maximum speed, there are not too many points of adjustment. There are certain features which have special requirements for facial manufacture practice.

The length of the wire is a matter for speculation. It is believed that the nozzle discharge on recent machines forces so much of the water through the wire near the breast roll that a long forming table is not necessary. This naturally shortens the wire.

I know of no facial machines which use a shake. Perhaps some facial manufacturer believes that one is desirable. It hardly seems likely, but the matter should not be overlooked.

Is a making board of any use?

Toilet tissue machines are using fewer and fewer table rolls. How many should there be on the facial machine? There are offered to the trade the dandy roll type of table roll and the fin roll. Are either or both of these suitable for the facial machine, and what should their requirements be—the diameters and the mesh of wire cloth in the case of the dandy type?

Where should the table rolls be located—the first roll after the breast roll and the spacing of subsequent rolls? With the slotted type of table roll support rail the papermaker has an opportunity to determine this for himself.

What should be the pitch of the table roll support rails? Should the wire plane pitch downhill from the breast roll to the guide roll—or should it be level or even uphill? Would the need of each opeartor to determine this for himself in relation to his pulp supply and preparation make a fourdrinier table adjustable in slope a warranted expense?

How many suction boxes are really necesary? How many would it be necessary to provide space for?

Is there any special type of suction box, cover, or vacuum control better suited to facial, or is this question a matter of ordinary papermaking?

The couch press, if improperly designed can, on an ordinary tissue machine, cause a good deal of grief. Assuming that it is designed structurally for opera-

tion at the required maximum speed, are there any special characteristics which a facial machine requires? Is the rubber top roll necessary or desirable? What should the plasticity be? Are there other special requirements for facial? Should the bottom roll have any special specifications? If the offset of the top roll is adjustable, should the roll be offset toward or away from the breast roll?

How many presses should there be? If two, should these both be suction presses, or only one, or neither? Or should there be only one press—presumably suction?

Is there anything to be said about the type of top roll in any one of these cases?

Is there anything to be said about the length of the bottom felt for each press?

What should be the method of cleaning and conditioning the top felt? It is assumed that the bottom felt is cleaned in the usual way with the device the individual papermaker prefers. Handling the top felt produces serious difference of opinion. We have been told that it should not be cleaned too clean; and that it must be cleaned as much as possible. One papermaker requires a device for raising the nap, and another can't get his machine up to speed until the nap is pretty well worn off. We differentiate, therefore, between the cleaning of the felt and the conditioning of the felt.

How big must the Yankee drier be to get the maximum required speed? This is not entirely dependent on the drier itself, or the pressure which is used in it, but depends on the aid to drying supplied by the design of the hood. It is standard that the steam is supplied through one journal and the water evacuated through the other. This is an ordinary papermachine design problem, but does facial have any special requirements?

The pressure roll is a matter for consideration. Should its diameter be selected only for structural reasons? Is there a pressure diameter in relation to the drier diameter which has its effect on the width of the nip; and does this have any special requirement when making facial? Assuming that the pressure roll is rubber, what is the most desirable plasticity? Is there any special reason for locating it in one place or another aside from getting the most drying space on the drier?

Some mills do not use tail rolls. Should there be one or not?

Let the hood specialists design the hood. However, we hear of additional warm air being supplied to the surface of the drying sheet through a variety of nozzles, slits, and holes and under varying pressures.. Does facial have some special requirements?

Is there a requirement for a special creping doctor for facial? Or can this be settled by general papermaking rules? Is there any special angle? Presumably the cleaning doctor be oscillated? Does facial require otherwise?

Should there be a sort of breaker stack or set of precalenders? What should be the material of these rolls? Are both chilled iron, or is one rubber and one chilled iron?

The effect of spreader bars in combination with the effect of the creping doctor and the per cent of crepe comes in to question? Are they a necessity for controlling softness? Or is this done with the per cent of crepe and the manipulation of the sheet in the calenders?

The calenders themselves may, it seems, have two rolls or three. These rolls may be either all chilled iron, or one rubber and one chilled, iron, or one rubber and two chilled iron. What is preferable?

The reel seems to be just a reel. In general it does not have to be too heavy, and evenness of reeling within fairly broad limits is not too fine a point.

In mills making facial at speeds up to and including a thousand feet there is a variety of ideas about winders. Some of them are remarkable and all interesting. In some mills the reel is taken to a converting department without any winding after the machine.

Two or more unwinding stands are likely to be required. Some facial tissue manufacturers put as many as three sheets together. And some of these do it after the machine, putting two or three sheets through a set of calenders. These calenders, it is claimed, soften the sheet, and press together the two or three sheets being wound to facilitate conversion.

The slitters vary from score cut slitters, against a solid roll, through a saw cut in a slot, to a plain saw cut. Shear cut slitters seem to be out of the question.

The actual reeling device can be of the shaft winder type or of a modified two drum winder type.

Design

No reference has been made here to structural items on which there are ordinary papermaking requirements. These include the design of felt rolls, wire rolls, and the actual structural design of frames. Nor has the drive been touched on, including the required per cent of crepe.

Again it is emphasized that we have designs which can be operated very successfully for most of the items which have been listed above as debatable. There are known to be differences of opinion on many of them. Your experience or best judgment will enable you to give answers which may be of benefit to all of us.

The success of some of the companies now engaged in the manufacture of facial is not miraculous. Their success is the product of two factors. One is intelligent use of their capital to procure for themselves machines which structurally and mechanically are designed to run without trouble at some high rate of speed. Added to this is the application of the papermaking and engineering skills within their own organization to adjusting, one after another, the papermaking bottlenecks which prevent them from reaching the desired speed. It is questionable whether they started up at their present speeds or achieved them without considerable study and adjustment.

This has also been done in the facial field on machines which were originally not very fast Yankee toilet tissue machines. Adjustments here, and changes there, have brought them to one thousand feet a minute or more. It is questionable whether they will run any faster mechanically or structurally.

This paper has been written to outline the items on a facial tissue machine which should be thought over very carefully by an intelligent purchaser and a competent machine manufacturer. The answers to most of the problems, or adjustable designs leading to the answers, are not beyond the scope of such a combination.

So surely as the purchaser is possessed of reasonable papermaking skill, intelligence, and guts, and the manufacturer is competent so surely will be designed a facial tisue machine capable of producing competitive quality at high speeds.

The Economics of Waste Paper*

By Norman Alper[1]

Abstract

The waste paper industry is composed of many integrated sections all of which are dependent on each other. It has been noted that the price of waste paper and the price of paperboards follow the same cycle so that is important to the paper and paperboard industry to stabilize the economic structure of the waste collecting agencies. When prices are high, more collectors enter the field with the result that a surplus is accumulated causing a price decline. The factors affecting this cycle are given with an explanation of the present waste paper situation.

In the fall of 1942, New York waste paper dealers, by special permission of the city officials, destroyed baled waste papers at the municipal incinerator. They could not sell it, nor give it way.

Just one year later, in the fall of 1943, a scarcity of waste paper exists. Paper mills are robbing each other of normal supplies. A black market operates openly with some of the largest paper mills under OPA indictment. Many mills have closed down for lack of waste paper and school children are being urged through radio broadcasts to save waste paper—for war.

The Waste Paper Consuming Industries Inc., are again spending large sums of money to encourage the saving and salvaging of waste paper. They are repeating their costly advertising campaign of 1941-2. Economically this does not make sense. Economically, the whole waste paper industry, including its customers, is a wild marginal industry running the gamut from feast to famine in short terrifying cycles.

Economics

The economics of waste paper follows two lines. It is first of all a waste. Secondly it is paper. Like all waste materials, waste paper is a product of consumers. Having been used once, in its original manufactured form, the waste material is reused as a "secondary raw material." In the first use, of metals, of textiles, of paper or any other reusable material, a distribution process takes place. From the producer or maker it passes in large quantities to wholesalers. Then in smaller quantities it is delivered to the distributors or retailer and, eventually, in very small quantity, to the ultimate consumer or user. Each of these individuals lives by the profit of his operation. Each one contributes to the final use of the manufactured goods.

Distribution of a waste material is a complete reversal of the ordinary process. The small quantity of waste produced by the individual consumer of finished goods ,is collected by the retailer of waste materials. He delivers it to the packer—grader who, in turn, passes it to the wholesaler or broker in larger quantity. The wholesaler supplies large tonnage quantities to the ultimate reuser of waste materials. Here too, each individual lives by the profit of his operation, contributing to the end use of secondary raw materials.

As waste paper, like most waste materials, is a product of human use, it is found in quantities where human population is greatest. Waste materials are the raw material exports of cities. Being a used product, waste paper has already served its original purpose. It has been read, used for wrapping or as a shipping container, or it is the remains of a roll or sheet of new paper, most of which has been converted into a finished item. Now, through salvage efforts, the papers no longer usable by the original consumer, is packed and graded into paper stock shipped to waste paper consuming mills and there changed into some new usefulness, usually another type of paper.

As a scrap material, waste paper follows the economic pattern of supply and demand. Higher prices bring new operators into the salvaging effort. Additional collectors add to the tonnage normally salvaged. Eventually, surplus causes lower values and the lower return discourages salvage operations and reduces the number of gatherers. Then the supply drops lower than demand. Prices rise again, collectors increase, and the cycle is repeated again and again.

Waste paper is being constantly produced. It is salvaged in large quantity when labor and enterprise is repaid through its collection and conservation. In times of great unemployment surplus labor collects all waste materials in greater quantity than is needed. When the supply of labor is short, salvage declines, for collectors move quickly towards more stable, more profitable employment.

The economics of waste paper, secondly is part of the economics of the paper industry, the greatest user of waste paper as a raw material. *Fortune* Magazine in 1937 described the economics of paper:

"The fact is that the paper industry is run, more or less logically, to conform to such a completely cockeyed set of economics that most people outside the industry believe that all paper men are crazy. As individuals, they are far from crazy. But they are living with an industry that has often been very sick even when industry in general has been very well; that seems almost to have a mental illness of its own —a sort of manic-depressive cycle through which it inevitably runs, and by which prosperity immediately creates the first symptoms of disaster, and the depths of disaster provide the first means to a recovered prosperity. If that looks like a business cycle, it is no ordinary one."

The whole paper industry is able to make more paper than can ordinarily be used. It has an unenvied record of low earnings on its investments. It is notable for a quick successions of gluts and fear inspired buying waves, creating artificial famines and surpluses. Foremost among the will-o'-the-wisps of the paper industry are the paperboard mills, prime consumer of waste paper tonnage. Let the paper demand boom upward and a score of closed, high-cost plants spring into operation. Soon, with the cycles quick turn they close again. *Fortune* describes another constant paper trouble. This too adds to the waste paper industry's St. Vitus dance.

"The process is so essentially simple, and so uniform, that the product of one mill may differ from another in little than name, and the paper machine

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 14-17, 1944.

[1] Asst. Treasurer, M. S. Alper & Son, Inc., Providence, R. I.

of one mill may, with minor adjustments, be made to turn out the product equivalent of a hundred other mills. The basic art is old, and beyond patent protection. There is a small ground on which producers can build and maintain a price structure. And generally, also, the paper man has been a better manufacturer than salesman. Paper is an industry requiring tremendously high capital investment; an investment of $40,000 per ton of daily capacity for a self-contained newsprint mill is a fair average. Thus a 750 ton mill would need about $30,000,000 exclusive of forest reserves. That kind of investment is not exceptional. The cost of a book or paperboard plant is less—yet rarely less than $20,000 a ton for any mill making high production papers. And it's just too bad if a mill can't book enough business to keep it going somewhere near its practical capacity—the combination of tremendous fixed charges and a comparatively low-cost product demands volume and more volume. If something happens to volume in such an industry it is the investor who usually pays."

With a personnel background like an itinerant fruit-picker and a market politely described as conforming to "such a completely cockeyed set of economics," operating a waste paper concern is not a business. It is a state of mind—Optimism.

Waste Paper Industry

As can be expected, in such an erratic business, there are no dividing lines among the components who gather, pack, and distribute waste paper. Some paper mills own and operate waste paper plants. Some waste paper plants own and operate paper mills. Many packers are also brokers. Many brokers are also packers. Some waste paper producers sell directly to consumers. In times when waste paper is short, paper mill customers are forced by the mills who serve them to supply waste paper on the threat of shutting off shipments of finished paper. But, in theory, the waste paper industry may be divided into the following groups:

1. Producers, 2. Collectors, 3. Packers, 4. Brokers, and 5. Consumers.

Producer

The producer is the source. It may be a private home, an office building, a paper converter, an industrial plant, or a city dump. A potential producer of waste paper is any, and every, line of human endeavor. Each year every man, woman, and child in the United States uses over 226 pounds of paper, directly or indirectly.

Collector

Collectors are usually individual operators. With truck or wagon they purchase or solicit contributions of paper and other waste materials, especially from households. Some publicly supported organizations such as the Salvation Army, Volunteers of America, and others, operate large scale collection agencies. Here in the collection of small quantities of waste paper, lies the present shortage. High wage defense plants and other industries, as well as the armed forces, have thinned the collectors ranks. Reduced immigration in the past decade has almost eliminated the "dyed-in-the-wool junk peddler." He is fast disappearing from the American scene. Licenses issued in many metropolitan cities show drops of as much as 60% in the past few years.

Packer

The packer of waste paper is either a specialist in waste paper or, a wholesale purchaser of all types of scrap materials. In the packers' plant, various types of scrap are segregated and prepared for shipment. Tonnages are accumulated sufficient, for the broker's direct mill shipment, alone or in combination with the output of other packers. Packing plants are most apt to be dependent wholly on manual labor, with little machinery except for a baling press. And many still operate with antiquated, hand-powered wooden presses. Working conditions are usually primitive. The ups and downs of the waste paper cycle discourages capital investment in this uncertain business.

Broker

The broker or mill supplier takes and fills the consuming mill's order. He purchases from the packers or large producers or other brokers and ships large tonnages. Very often he is also a packer and grader. In many instances the mill-supplier-packer operates a sizable plant or number of plants for packing, grading, and delivery. The broker operates as a conveyor, moving a steady stream of paper stock from source to ultimate user.

Consumer

The consumers of waste paper are mainly paperboard and building material manufacturers. Waste papers have many uses, many grades, determined by their original pulpwood or other fiber content, color, print and finish.

As a pulp substitute the economy of waste paper is that of a marginal material, the use of which is the result of accident or a breakdown of pulp supply. If this were its only use, the waste paper industry would exist only in emergencies and be small indeed. By itself, as a material of vital, constant, need to the overall economy, waste paper is used in staggering tonnages. In 1942 over 5,500,000 tons were used. Present WPB publicity is calling for 8 million tons. The whole system of packaging depends on waste paper products. Foremost in its advantages is the cheapness of paperboard, of which waste paper is the prime raw material.

Collection

There are high cost and low cost waste papers. Wherever waste paper is produced in large quantities, the cost of salvage operations is lower. Paper converting and printing plants, large industrial concerns, and office buildings usually find the cost of baling waste paper, for easy removal, a cheaper method of elimination than burning or destroying. This type of waste paper is constantly produced, no matter how low the value may be. In time of waste paper surplus, the tonnage of "producers paper stocks" gluts the market and depresses waste paper to below the packer's cost of collecting and baling. The sale value of a producer's waste paper is of minor importance. It is sold below cost of production. For the producers' main incentive is to remove a fire hazard. But, the total available tonnage of producer-baled waste paper is small, compared to the quantity required to fill the national demand each year. The deficiency is made up by packer-produced bales gathered in small quantities, by the collectors, peddlers, and scavengers. There is an axiom in the waste trades that "price brings out tonnage." Of the total paper production, less than 35% is ordinarily reclaimed through all salvage channels: 65% or more is destroyed. When prices are high, and the ranks of collectors increase; tonnage increases, out of the 65%

of high cost waste papers, which require more labor and effort per ton to reclaim. Then the supply-demand, scarcity—surplus cycle operates all over again.

Through the steadily repeated forcing of supply and demand, the paperboard industry creates price spirals for its finished products upward and down. The prices of paperboard and boxes follow waste paper prices. When mixed papers sold at $45.00 per ton in 1922 and newspapers at $50.00 per ton, chipboard sold at $125.00 per ton. In 1937 when mixed papers sold at $1.00 per ton and newspapers at $2.25 per ton, chipboard sold at $25.00 per ton and less.

It would seem that in the post-war era, paperboard, the main product of the raw material waste paper, will have many new competitors for its main use, packaging. Plastics have already captured a part of the luxury-box field, alone or in combination with boxboard. Metal foils bid to share the food field, as do the new synthetic rubbers. Paperboard and waste paper must maintain a low price structure to retain their markets. They can remain low in price only through creating and supporting an efficient, well equipped, low cost service of supply, eliminating the frequent, discouraging peaks and valleys of price and demand for waste paper, paperboards, and the products made from paperboards.

During World War II, the waste paper consuming industries have twice appealed to the producing public to save and supply them with waste papers. This is basically an attempt to secure the donation of labor by the population, to salvage waste paper in place of the sub-standard waste paper and scavenger labor which has gone into more profitable work. A costly advertising campaign stressing a patriotic theme is used. Boy Scouts and civic organizations are thereby induced to work in the interests of the waste paper consuming mills at far less than the prevailing hourly rates of labor pay.

The first waste paper advertising campaign followed the natural course of waste paper economics. It resulted in a tremendous surplus, followed by a market decline to a point where baled mixed paper stocks sold, when orders were obtained, at $3.00 per ton, far less than the cost of collecting and packing. This took place in 1942, during a period of wage and salary inflation. The natural result was that the waste paper industry lost its labor. It contracted. For it could not operate at a loss and meet increasing wage scales at the same time. Following closely, in the summer of 1943, a nation-wide waste paper shortage developed. Paper mills bid against one another for raw stock. The normal channels of its distribution were short-circuited. Black market buying became current, with government OPA legal action against many of the largest waste paper consumers and their suppliers.

The problem created by the frequent economic cycles of waste paper is, peculiarly, more vital to the waste paper consuming industry than to the waste paper packing industry. The average waste paper concern has a small investment and a small overhead. It is capable of contracting and expanding. The waste paper consumer represents big capital investment, with intense competition not only among manufacturers of the same product, but with pulp producing mills and with nonpaper materials usable in place of paperboard. Add to this a usually large debt overhead, a dog-eat-dog supply situation for its basic raw material, and an equally wild sales condition. The result is an unprofitable chaos.

The future prospects, under these conditions is not a question of how mill operations can be made profitable, but rather how waste paper consuming mills can expect to survive. Many waste paper consuming mills are already a losing proposition; many are supported only through their own converting plants. The mills are maintained to insure a steady, though often more costly source of supply.

Waste paper consumers can help to reduce the frequency of their own and their suppliers economic cycles. It will require a good deal of planning and closer cooperation because only through a closely working team of supplier and user, geared to each others' needs and operating conditions can a mutually profitable solution be found. In the 18th Century Hannah More wrote a prescription for this industry: —"A sound economy is a sound understanding brought into action. It is calculation realized; it is the doctrine of proportion reduced to practice; it is foreseeing contingencies and providing against them; it is expecting contingencies and being prepared for them."

TAPPI Notes

Glen O. Neimeyer, chemical engineer for the Stone & Webster Engineering Corporation has been transferred from Knoxville, Tenn., to 49 Federal street, Boston, Mass.

Frank T. Peterson is on leave of absence from the General Electric Company to the Personnel Section of the Naval Ordnance Laboratory, Navy Yard, Washington, D. C.

J. F. Mitchell-Roberts is resigning his position as manager of the Foreign and Export Division of Oliver United Filters, Inc.

Marcel A. Cordovi, formerly research assistant of the Welding Research Council of the Engineering Foundation has joined the metallurgical staff of the Babcock & Wilcox Tube Company.

Earl O. Knapp is back with the Calco Chemical Division of the American Cyanamid Company. Mr. Knapp was inducted into the Army in March 1943 and was assigned to the Chemical Warfare Service. He spent three months in England last fall. On return to the States he was confined to the Post Hospital at Camp Reynolds, Pa. for several weeks and was discharged from the Army in January 1944.

Sam Foster, formerly of the Sandy Hill Iron and Brass Works is now chief engineer for the Kalamazoo Vegetable Parchment Company, Kalamazoo, Mich.

T. J. Kehane Made Vice President

Worthington Pump and Machinery Corporation has announced the appointment of Thomas J. Kehane, of East Orange, N. J., as commercial vice president in charge of the corporation's Pacific Coast activities. Mr. Kehane will make his headquarters in new offices to be opened July 1 at San Francisco. He will likewise supervise the corporation's business in the territory served by its Salt Lake City district office.

Mr. Kehane, who is 42 years old, started with the Worthington organization as a fourteen year-old office boy in July 1915. He has been with the corporation continuously ever since, for the last 19 years in the sales department. He has advanced through various positions to his most recent assignment as manager of New Jersey sales and assistant manager of the New York district office.

Machinery Used in Bleaching of Groundwood*

By E. V. Ullmann[1]

Abstract

A continuous system for the bleaching of groundwood is recommended as it is easier to control and produces a more uniform product at a lower cost.

In discussing a proposed system, the necessary equipment is described including stock consistency regulators, high and low density towers, pumps, filters, washers, and chests as well as materials of construction.

For many years the problem of bleaching groundwood has been the subject of research in laboratories and universities all over the world. Mechanical wood pulp has been bleached in batch bleachers, and small continuous systems have also been installed, but up until now, it has not been possible to make a permanent bleach within economical limits. The reason for this is mainly that the principal chemical used for bleaching of wood pulp is chlorine, an expensive chemical that could be used advantageously for higher grades of pulp such as sulphite and even sulphate, but was too expensive for mechanical wood pulp. Because of the nonexistence of any actual plants for the bleaching of groundwood, the necessary machinery has been given little study.

However, groundwood pulp as such, is a product of which the physical properties are well known, even in the bleached stage. There will be no difficulties as soon as an economical system of bleaching has been developed in designing machinery that will fit in this system.

The duPont Solozone system of groundwood bleaching is no longer in the experimental stage, as a certain paper mill has produced a high class paper of 30% sulphite and 70% bleached groundwood for a long time, but in order to make the bleaching still more economical and efficient, future plants should install the most modern designs of pulp bleaching machinery and equipment.

The first question arising will be whether bleaching should be effected in batches or in a continuous operation. The writer definitely is in favor of the latter because a continuous operation offers many advantages as compared with batch bleaching. The design is simpler and takes much smaller space, mainly because in a continuous bleaching plant, towers can be utilized instead of chests, which will increase the building in height but reduce the ground area. The continuous system is also easier to supervise because the constant flow of pulp through the plant can be regulated in regard to chemical consumption, consistency, and time, and once started only small changes have to be made from time to time. This naturally means less man power, for as a rule a continuous bleaching system, even up to 250 tons a day or more, needs no more than two men for the supervision. The product from a continuous system will be more even than that from a discontinuous one because the delivered output is checked continuously and can be regulated as soon as a tendency to vary from the desired figures is discovered. Another advantage to which little consideration is given but which is of no small importance, is the lesser wear and tear as well as corrosion on machinery operating continuously than on machines operated at intervals; a fact well known to any mill operator. Also the great peaks in water and power consumption that are apt to occur in a discontinuously run plant, do not exist in a continuous system where consumption curves are running more evenly along the average line.

The special difficulties of treating groundwood pulp are well known; the coarse form of the fiber bundles in groundwood has characteristics differing from those of chemically treated wood pulp. In the latter every individual fiber has its surface subject to attack from chemicals in the liquid surrounding it, whereas the fiber bundles of groundwood pulp have some fibers completely covered by their neighbors, while others are cut open and subjected to attack both from inside and outside. The difficulties encountered because of the different dewatering of these fibers are also well known.

In other words, these difficulties must always be given consideration when studying the special requirements which the sodium peroxide bleaching method demands from the machines used in the system. These special requirements can be listed as follows:

(a) An even flow and an even consistency.
(b) A rapid and thorough mixing of pulp and chemicals.
(c) Ample storage time which also must be combined with a certain flexibility of volume.
(d) Efficient agitation during the whole process.
(e) Thorough mixing as rapidly as possible, of the pulp and reducing agent.
(f) The transportation between each stage should be as rapid as possible, reliable, and uninterrupted.
(g) The material used in the machinery and equipment should resist corrosion and temperature variations.
(h) Last, but not least, the machinery must be absolutely reliable with no possibility of failure.

Flow

An even flow can only be obtained by installing a regulator in front of the first stage of the bleaching. The simplest flow regulator is a level regulator, in which the overflow guarantees a constant level which will maintain a constant flow through the delivery chute, provided the consistency is even. This again necessitates installation of a consistency regulator.

One type of regulator is based on the principle that changes in consistency will increase the resistence of an agitator revolving in the stock. The variation in pull on this agitator operates a small pilot valve, which regulates the water. The consistency regulator should operate on the total volume and not on a sample of the stock only. The mixing of the stock and water is usually made in the regulator box itself.

Uusually these two regulators are combined. The regulator should be placed some 10 or 15 feet above the highest level of pulp in the plant, and once started, needs little or no attention.

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 14-17, 1944.

[1] Sandy Hill Iron and Brass Works, Hudson Falls, N. Y.

Mixing

The mixing of pulp and chemicals was previously made in a rather primitive way, i.e., by using a rotating agitator in a circular chest where the chemicals were added through a pipe directly into the batch. This design naturally is very badly suited for continuous operation. A more modern arrangement is where the pulp is continuously passed through a chute by means of a conveying screw, and the chemicals are added either in front of the screw, in the end of it, or both. This design is much better than the former but it has its drawbacks, mainly because of the long shaft which necessitates bearings in the chute, and the large surface in contact with the pulp solution.

The modern method is to use a circulating pump. Because of the small surface coming in contact with the pulp, the impellor and back plate can be made of the best possible material, i.e. stainless steel. The pump is equipped with ball bearings only, easily exchanged from outside without having to open the tank and interrupt the process for a long time. The impellor of such a pump is of a streamlined design with the shape of the blades giving an even acceleration to the pulp without harming it in any way. The power consumption, naturally, will be the minimum with such a pump.

When treating pulp continuously, a tower is the natural shape to choose. The pulp enters the tower in the bottom, passing through it, partly because of the higher head on the suction side, and partly by means of the circulation pump placed in the bottom. The pulp is given a rotating movement in the bottom of these towers and as new pulp is steadily entering the suction side of the pump, the stock is slowly moving upwards in a spiral, overflowing on the top of the tower. The pumps are usually designed so that several times the amount of pulp added is kept in circulation by the pump, which insures a complete mixing of the entering pulp, and that already in the tower. The chemicals should most preferably be added directly into the bottom of the tower, simultaneously with the pulp, so that the mixing takes place immediately and just before stock enters the suction of the circulating pump. Strong agitation and mixing takes place in the pump.

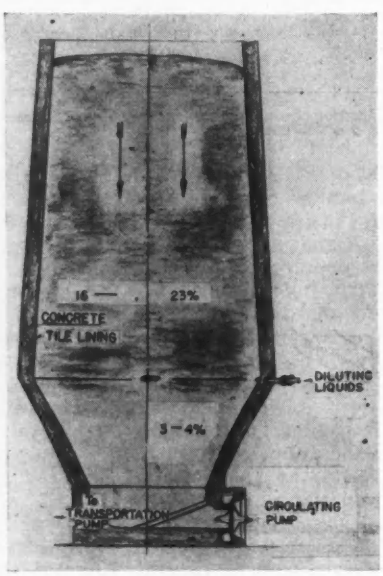


FIG. 1
High Density Tower

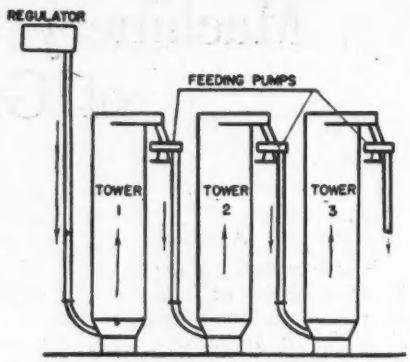


FIG. 2
Towers Placed in Series

Towers like these are used for densities up to 7% consistency. If higher concentration is desired, a tower like that shown in Fig. 1 should be used. The tower is made with the diameter slightly increased downwards, to avoid any risk of clogging in it by the thick stock. Just where this increase stops, the injectors for diluting liquid are placed, giving the stock a revolving movement until it enters the pump which will keep it in circulation. These towers are in use for concentrations up to 23% and experience has proved that there need not be any fear of clogging or other trouble. Naturally the power consumption in such a tower is much less than in towers equipped with screw type agitators or big revolving agitators, and the surface in contact with the pulp is considerably less.

Towers have been built with a volume up to 10,000 cubic feet which can give a treatment time in the towers of up to 3 or 4 hours. The time it takes for the pulp to pass through a tower naturally depends upon the density, and within certain limits the time can be changed by choosing different consistencies of the pulp. Thus a pulp of 2% consistency will pass through the tower in about half the time of that spent by a pulp of 4% consistency. Often, however, even a longer time is desired, and it may not be advantageous to change the consistency once chosen. In such cases, two or more towers are placed in series, as shown in Fig. 2.

Underneath the overflow of each tower is arranged a special feeding pump which presses the stock into the bottom of the following tower. Any number of towers can be arranged in that way, so that the time can be chosen freely. The maximum density in towers like these would practically be limited to about 7%.

Agitation

The agitation should mainly take place in the beginning of the process, where it is most necessary in order to mix the pulp and chemicals thoroughly. It is obvious that the pulp is agitated violently while passing through the pump, and a certain turbulence will continue within the dilution for some time after it leaves the impeller blades. At the same time, the whole stock is started in a circular movement, and because it is pressed upwards by the incoming pulp, the movement will be that of a spiral. Investigations that have been made, reveal that this spiral movement takes place up to a height about two-thirds that of

the tower. In order to get an even flow out of the tower over the top, a combined scraper and spray pipe is sometimes installed. The scraper serves to keep the stock revolving and should turn in the same direction as the spiral in the bottom. The spray pipe is necessary if the high consistency stock is to be transported by means of an ordinary centrifugal pump which normally doesn't work well with stock above 4 to 5%.

One of the most important machines in a modern bleaching plant is the transport pump. Here is a machine through which ordinarily the whole production has to pass uninterruptedly as far as possible, and it is of great importance that the pump be sturdy and reliable. Also the power consumption must be as low as possible. A modern pump should be easily inspected, and equipped with ball bearings.

A new and modern transport pump is the so-called "built-in type." This pump has no suction pipe at all, the suction part of the impeller runs directly into the wall of the chest. The inner part of the housing is cast into the concrete, whereas the outer part with the impeller and shaft can easily be taken off from outside. A gate valve should be installed in front of the suction to enable removal of the pump without having to drain the chest or the tower.

Sometimes the pump is installed horizontally, i.e. underneath the overflow of a tower. It goes without saying that all possibilities of clogging in this way are eliminated, which is very important, particularly when groundwood pulp is concerned.

Usually all pumps, both circulating and transport pumps should be equipped with V-belt drive in order to enable small changes of the r.p.m. of the pump if desired, i.e. when consistency is changed. Also this drive offers a very flexible transmission between motor and pump.

Construction Materials

It is usually desirable to use a material that will resist not only chemical attacks but also temperature variations. The peroxide bleaching method usually is not operated at temperatures above 120° F., and thus a good quality rubber lining is satisfactory, which will stand any temperature below 150° F. Above this the rubber becomes soft and is easily damaged by foreign objects that should happen to enter the system, such as small pieces of wood, tile, etc. To be on the safe side, of course, stainless steel is the best material.

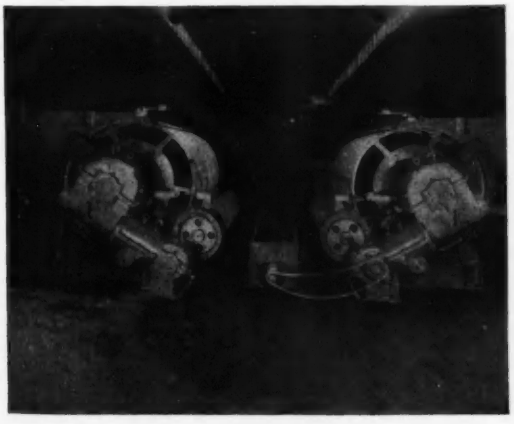


FIG. 3
Pressure Filter

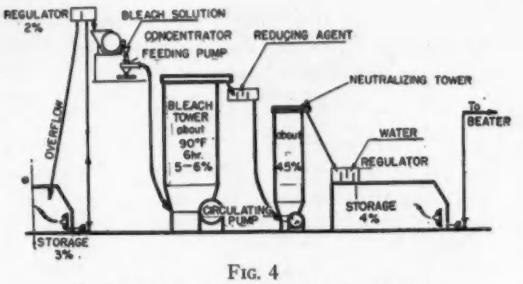


FIG. 4
Continuous Bleaching System for Groundwood

As previously mentioned, with modern circulation pumps the surfaces in touch with the pulp have been decreased to a minimum and thus stainless steel can ordinarily be afforded. Also the machine parts actually in touch with the pulp must have good expansion possibilities, which is much easier to obtain with a pump than with an agitator or screw.

The towers and tanks should always be tile lined. In the author's opinion it is bad economy to try to save a few hundred dollars on this item. When properly tile lined, a tank will stand up clean and white for years, possibilities of sediments and clogging are decreased considerably, and the friction along the walls which always means waste of power is decreased to a minimum.

It is of main importance that the machinery used in a bleaching plant be reliable. Naturally machinery of simple design will be more reliable than a complicated machine part. The fewer bearings the better, and all bearings should be placed outside the pulp solution itself. The arm of force should be as short as possible, so that if some foreign object should enter the system, it would do as little harm as possible. Also the lubricating must be simplified which is most easily done by utilizing ball or roller bearings. A ball bearing properly installed requires but little lubrication.

Sometimes the electric motor is placed on a bracket and away from the floor which makes it easier to keep the floors clean and free from dirt and water.

An ample supply of spares should always be kept in stock, which is something to take into consideration when choosing types of machinery. Machinery with small and simple parts is, of course, to be preferred and a new part must be easily exchangeable.

In case a discontinuous operation is necessary, for any reason, the usual way is to make each individual bleach in a batch-bleacher. The limit of consistency in a batch-bleacher is usually 6 to 8% and for reasons as mentioned before, a circulating pump is much to be preferred to a revolving agitator; smaller surface, less power consumption, easy accessibility and exchangeability, and a perfect circulation without any risk of clogging or sedimentation. The speed of the pulp circulating through such a bleacher should be about 6 to 12 feet per minute, and tile-lined walls will secure practically the same speed all over the chest.

Washing

It is sometimes desired to dewater or concentrate the pulp between two stages, at the same time doing a certain washing of the fibers. The oldest form for washing was riffflers, water extractors, or similar designs, and are comparatively simple, but today's high qualities demand a much better washing and suction

filters have been used in most modern bleaching plants for this purpose. A new filter made on this continent is the so-called "pressure filter." This filter works without any suction leg, and the basic principle is that impurities are more easily removed from the stock by crushing or pressing the water out of the pulp, than by sucking it. Two of these filters working opposite each other are shown in Fig. 3, and it can be seen how weights on a lever arm are pressing the picking up roll against the filter drum with a considerable pressure, forcing the water out of the pulp and dewatering it to about 16% moisture-free consistancy. The lever is provided with a stop, preventing the roll from pressing against the drum when there is no pulp passing the filter, thereby preserving the life of the wire cloth. The roll and the filter drum are both driven from the same motor and the speed is somewhat higher than that of the suction filter. The power consumption however, is considerably less and the total power required for even a very large filter does not exceed 3 to 5 h.p. The capacity is normally about 0.5 tons per inch working width for groundwood pulp, and about the double for sulphate and sulphite pulp.

If washing is desired, large amounts of fresh water are added in the bottom of the filter, through a pipe, which is seen in the figure. The pressure roll is usually rubber covered, but may be equipped with wire cloth acting as egoutteur roll.

For very high capacities, the pressure roll is increased in size, covered with wire cloth and used as a second drum. In this "duplex" filter, the subtraction is effected by two filter drums pressed together in the same way as with a simplex-type pressure filter. Pulp webs are formed on both filter drums and the two webs are pressed together at the nip, whereafter the pulp follows the large drum in its rotation towards the picking-up roll, from which it is removed by a doctor. When a filter is used for washing, which is usually the case, the water is distributed along the whole width of the filter by a special distributing system. The water thus added is forced through the webs on each drum, effecting a very efficient washing action. The capacity of this filter is nearly double that of the simplex filter and machines have been built with a capacity of about 350 tons per filter per day.

Storage

Another important problem to consider when designing a modern bleaching plant is the storage of the pulp before and after the bleaching. Modern storage chests are very different from the old-fashioned ones, with heavy revolving agitators splashing through the stock. There is practically no limit for the size of a storage chest equipped with circulation pumps and they have been built up to 70,000 cubic feet with 100% efficiency in the circulation, and no sedimentation. For volumes up to 20,000 cubic feet one circulation pump only is required, but for the largest capacities, one or more additional pumps are installed. The chests can be built rectangular or circular. The power consumption in a modern chest is considerably less than what was necessary for the revolving agitators and ordinarily 25 to 35 hp. is sufficient for an ordinary size of storage chest. Chests are often built outside the building, or in close connection with it, so that only the electric motor is inside the building proper.

Proposed System

A diagram of a proposed arrangement for a bleaching plant utilizing the sodium peroxide system, is shown in Fig. 4. The regulator in front of the bleaching tower keeps the head and the consistency constant, and the following towers should be designed in number and volume so as to give the desired time for the actual bleaching.

The neutralizing takes place in the last tower, at about 4.5% consistency, and the stock may be diluted to 4% in a regulator before dropped into the storage chest for the beaters. The concentration in the neutralizing tower may be as low as 3 to 3.5% in which case the stock should be concentrated on a pressure filter before it is dropped into the chest. Such filter would simultaneously act as a washing machine, to remove all impurities from the pulp. (The former arrangement only is shown in Fig. 4.)

The space required for a bleaching plant with four bleaching towers placed in a square and the neutralization tower in front of the storage chest is very small, 70 by 70 feet and 50 feet high, and for small capacities and limited space, the building can easily be decreased even more.

The advantage of modern machinery is that it has been streamlined so that any method developed in the laboratories can be given a practical design by means of these machines. By utilizing modern transport pumps, circulating pumps, filters, and tower design, any problem given by the chemists can be solved practically because it is known how the machines will behave in regard to any fiber, any system, or any condition encountered.

Impco Gets Second Renewal

W. L. Barker, president of the Improved Paper Machinery Corporation, Nashua, N. H., has received the following letter from Admiral C. C. Bloch, chairman, Navy Board for Production Awards, which explains itself:—

"It is a pleasure to inform you that the Navy Board for Production Awards has granted the Improved Paper Machinery Corporation a second renewal of the Army-Navy "E" Award for meritorious service on the production front.

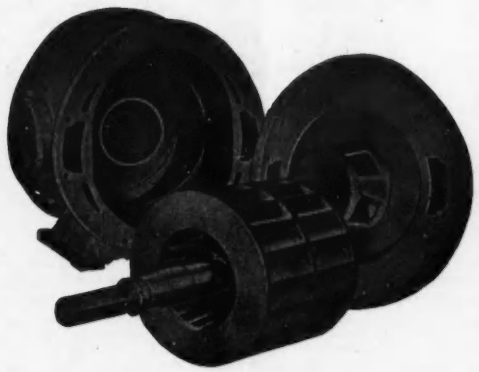
"The men and women of your plant have continued to maintain the high standards they set for themselves when they were originally awarded the Army-Navy "E". They may well be proud of their achievement. There is being forwarded to you a new pennant with two stars affixed, which should be received in the near future.

"The additional white star, which the renewal adds to your Army-Navy "E" flag, is the symbol of appreciation from our Armed Forces for your continued untiring effort and support so necessary for victory."

Australia to Make Pulp for Rayon

Reports from Australia state that Ralph P. Worley, a paper mill engineer and cellulose expert from New Zealand, is investigating the possibility of establishing in Australia a rayon pulp industry with a capital of £A750,000. He is consulting engineer to the British-Australia company which hopes to launch the project. The initial object is the production of 15,000 tons of rayon pulp a year from grasses and softwoods.

SIMPLICITY



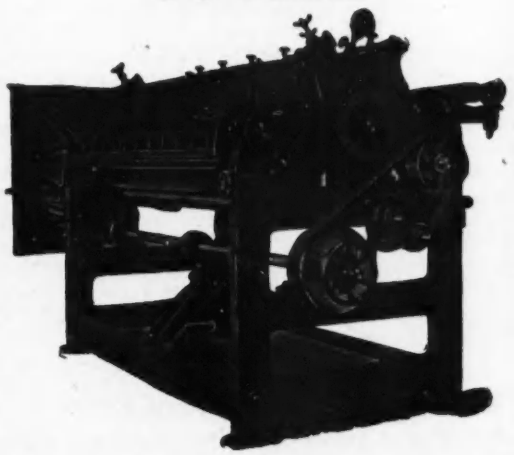
NASH VACUUM PUMPS HAVE ONE MOVING PART

Operating advantages made possible by the Nash principle, and present in no other type of vacuum pump, permit a new level of operating economy. Nash Vacuum Pumps have but one moving part, a rotor cast in one piece, and revolving without metallic contact. There are no valves, no pistons or sliding vanes, no internal parts requiring wear adjustment or lubrication.

NASH ENGINEERING COMPANY
SOUTH NORWALK, CONNECTICUT, U. S. A.

MODEL 28

ROLLER BEARING CUTTER



HAMBLET MACHINE CO.

LAWRENCE, MASS.

MAKERS OF
SINGLE, DUPLEX AND DIAGONAL PAPER CUTTERS
CUTTER KNIVES, PATENT TOP SLITTERS.

BAUERIZE REJECTS AND SCREENINGS

EVERY TON OF STOCK YOU SALVAGE COMBATS THE PULP SHORTAGE AND HELPS YOU BACK THE ATTACK.

With a Bauer pulper you can salvage and quickly prepare for sheet formation your screen rejects—turn such waste into A-1 Stock.

With a Bauer you can process semi-chemical and fiber, obtain plenty of rolling and pliableizing without cutting — develop greater freeness, raise your Mullen and tear.

Two sizes, 36" and 24" diameter discs with full range of plate patterns.

Available to mills on adequate priority. Early installation assured.

Also widely used Bauer Classifier for laboratory use.

The BAUER BROS. Co.
SPRINGFIELD, OHIO

ARMY E NAVY
Bauer

New York Paper and Pulp Market Review

Paper Production Continues At High Level — Less Wood Pulp Available In Third Quarter For Many Paper Mills — Board Mills Need More Waste Paper — New Cotton Cuttings Are Active.

Office of the PAPER TRADE JOURNAL,
Wednesday, June 21, 1944.

The outlook in the wholesale paper market is complicated by the uncertain requirements considered essential for the successful conduct of the war. Some reports from manufacturers' representatives, jobbers, and general paper merchants mention this aspect of the situation in current reports.

One of the striking developments in recent months, the Department of Commerce states in its latest report, is the gradual liquidation of inventories held by manufacturing firms. These reductions occurred in both war and non-war industry groups.

The index of the value of manufacturers' inventories in paper and allied products, the Department states, was 139.1 in April, 1944, compared with 138.6 for April, 1943, and with a low of 124.7 in December, 1943.

The index of manufacturers' shipments in paper and allied products was 168 in April, 1944, compared with 159 in April, 1943, and with a low of 155 in March and July, 1943.

Paper production for the week ended June 10 was estimated at 91.5%, compared with 88.0% for 1943, with 88.4% for 1942, with 99.0% for 1941, and with 91.9% for the corresponding week for 1940.

Paper board production for the week ended June 10 was 96.0%, compared with 97.0% for 1943, with 72.0% for 1942, with 88.0% for 1941, and with 79.0% for the corresponding week for 1940.

The WPB announced June 15 that Limitation Order L-11, controlling the use of chlorine in pulp, paper and paper board, as a bleaching or oxidizing agent, had been amended to include the interpretation issued by the WPB on April 18, 1944. This order, WPB-5481, clarifies the original and limits the brightness permitted for many types of paper and paper products.

Wood Pulp

A slight increase in pulpwood receipts is reported by the WPB. It states that improvement has been achieved by the use of approximately 7,000 Italian war prisoners. The WPB also states it has found it necessary to make drastic reductions in third quarter pulp allocations for the manufacture of many types of paper and in some cases, certain paper mills will be able to operate only 4 or 4½ days a week for lack of wood pulp. This enables as many mills as possible to remain in operation, it was explained.

Rags

Mill buying of new cotton cuttings continues active and absorbs about all available supplies at ceiling prices. Prices are strong.

Mill demand for old cotton rags is active and reported to be in good volume at this date. All grades of roofing stock are in heavy demand. Prices are firm.

Old Rope and Bagging

Mill demand for old Manila rope continues to absorb all limited available supplies at the ceiling price. All fibers are relatively scarce and demand for all types of fibers is active.

Trading in scrap bagging continues very slow. Prices are soft and continue nominal.

Old Waste Paper

Mill demand for paper stock continues urgent, with some reports indicating the possible curtailment of operation in some paper board mills if more waste paper is not obtainable.

Collections of waste paper for April aggregated 586,000 tons, and was higher than in March. Talk of higher OPA ceiling prices to stimulate collections has not been confirmed. Frank D. March, WPB-CDVO salvage chief for New York City, has stressed the urgency of the situation. In May, he said, city collections totalled 74,000 tons of paper, or 14% of the total tonnage by the nation.

Twine

Demand continues active for all types of twine available for civilian use. No important change in the general market situation has been reported during the current week.

Calculus Refresher

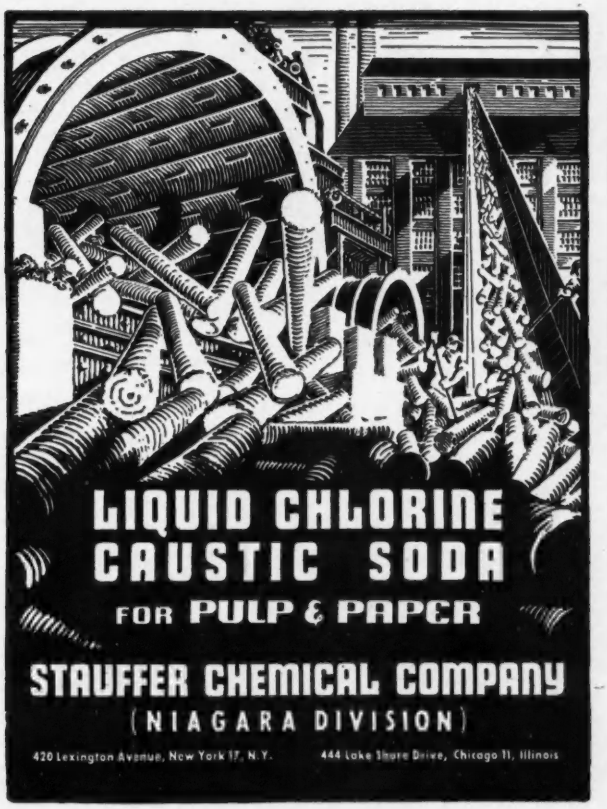
Most technical men have had some courses in differential and integral calculus but proceed to forget the subject because of lack of opportunities to use the subject frequently. Very often, however, there is occasion to make good use of it and McGraw-Hill's new book entitled Calculus Refresher for Technical Men by A. A. Klaf, Civil Engineer of the Board of Water Supply, City of New York, should meet a long felt need. Its method of presentation is new and consists of 756 questions and answers that serve as a guide to most ordinary problems confronting engineers. (431 pp. 5½ x 8½, illustrated). The essentials are developed and stressed so that the reader can apply them to practical problems. Although the book is prepared primarily for men who have studied calculus before and wish to review the subject easily and rapidly, it is fully adequate for the beginner. A knowledge of trigonometry is necessary. The appendices are useful.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd street, New York 17, N. Y., at $3.00 per copy.

Marcel A. Cordovi Joins B&W

Marcel A. Cordovi, formerly Research Assistant Welding Research Council of the Engineering Foundation, has joined the metallurgical staff of The Babcock & Wilcox Tube Co. as Research Metallurgist.

Mr. Cordovi received his BME and MME degrees from the Polytechnic Institute of Brooklyn where he held a Graduate Fellowship in 1941 and worked on numerous research projects with Professor Otto H. Henry.



LIQUID CHLORINE
CAUSTIC SODA
FOR PULP & PAPER

STAUFFER CHEMICAL COMPANY
(NIAGARA DIVISION)

420 Lexington Avenue, New York 17, N.Y. 444 Lake Shore Drive, Chicago 11, Illinois

Now Available!

COLEMAN
pH ELECTROMETER

A limited number of these famous reliable pH electrometers are now available. Reasonable priority equipments. We suggest ordering immediately.

ACCURATE to within the limits of the glass electrode, namely .05pH! Used extensively in the laboratory and for plant control. Eliminates glass electrode breakage because of special construction. Sealed chassis prevents moisture from causing leakage error.

Single scale, 0-13 pH by 0.1 pH divisions. Complete with Sealed Ag-Ag Cl Glass and Reference Electrodes, buffer solution, tubes, batteries. Price $180.00.

Write for Catalog PT 6-44

WILKENS-ANDERSON CO.
111 NORTH CANAL STREET • CHICAGO, ILLINOIS

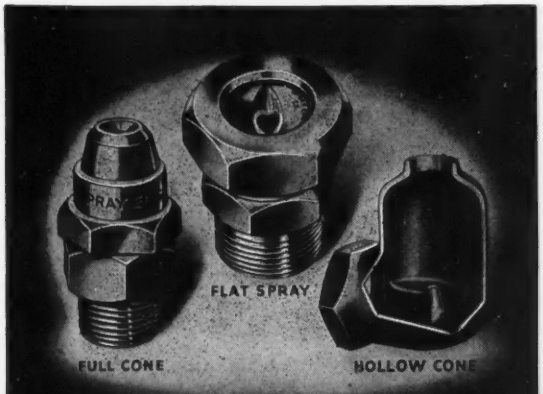
J. Andersen & Company

21 East 40th Street

NEW YORK

Importers of Pulp

BLEACHED AND UNBLEACHED
SULPHITE, KRAFT PULP AND
GROUND WOOD



SPRACO
NOZZLES

Write for NOZZLE CATALOG to
SPRAY ENGINEERING CO.
118 CENTRAL STREET • SOMERVILLE 45, MASS.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, June 21, 1944.

BLANC FIXE—Quotations on blanc fixe continue firm and unchanged. Demand is reported fair. The pulp is currently quoted at $40 per ton, in barrels, at works; the powder is quoted at $60 per ton, f.o.b. works.

BLEACHING POWDER—Current demand is active but market situation is reported as quite well balanced between supply and demand. Quotations are unchanged. Prices on bleaching powder range from $2.50 to $3.10 per 100 pounds, in drums, car lots, at works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 24 cents per pound; 2,000 pounds, 24½ cents per pound; less than 2,000 pounds, 24¾ cents per pound, f.o.b. shipping point.

CAUSTIC SODA—Demand continues heavy. Market reported tight. Prices are unchanged. Solid caustic soda is quoted at $2.30 per 100 pounds; flake and ground is quoted at $2.70 per 100 pounds; all in drums, car lots, at works.

CHINA CLAY — Quotations on china clay are unchanged. Current demand is reported fair. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton, at mine. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Demand reported heavy with all essential requirements met. Quotations are unchanged. Chlorine is currently quoted at $1.75 per 100 pounds, in single unit tank cars, f.o.b. works.

ROSIN—Prices on some grades are higher for the current week. "G" gum rosin is quoted at $5.53 per 100 pounds, in barrels, Savannah. "FF" wood rosin is quoted at $5.53 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is currently quoted at $5.80 per 100 pounds, f.o.b. works.

SALT CAKE—Prices on salt cake are reported unchanged for the current week. Consumption in paper industry is currently reported at a relatively low level. Domestic salt cake is quoted at $15 per ton, in bulk. Chrome salt cake is quoted at $16 per ton. All prices in car lots, f.o.b. shipping point.

SODA ASH—Heavy demand continues for domestic requirements and market is still tight. Quotations continue unchanged. Current prices, car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Larger shipments of corn are reported this week and the supply situation is reported much improved for processors and outlook appears best in many months. Big demand continues to create tightness in market. Quotations unchanged. The pearl grade is quoted at $3.72 per 100 pounds; powdered starch at $3.83 per 100 pounds; all prices in bags, car lots, f.o.b. Chicago.

SULPHATE OF ALUMINA — Demand reported active. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.25 per 100 pounds, in bags, car lots, f.o.b. works. The iron free is quoted at $2.35 per 100 pounds, in bags, at works.

SULPHUR—Quotations on sulphur continue to conform to prevailing market prices. Annual contracts are quoted at $16 per long ton, f.o.b. mines; the price at Gulf Ports is $17.50 per long ton.

TALC—Prices on talc continue unchanged. Demand moderate. Domestic grades are currently quoted at from $16 to $21 per ton, at mines; Canadian at $24 per ton. All prices in car lots.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

Standard News, per ton—

Roll, contract...	*$58.00	@	—
Sheets	66.00	"	—

* OPA Maximum Price.

Kraft—per cwt.—Carload Quantities Zone A, f.o.b. Mill

Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping...	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard Bag.....	*4.375	"	—

* OPA Manufacturers' Prices.

Tissues—Per Ream—Carlots

White No. 1.....	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1½....	1.00	"	—
White No. 2.....	.90	"	—
Anti-Tarnish M.F..	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—

Toilet—1 M. Sheets—Per Case

Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet...	5.70	"	—

Paper Towels, Per Case—

Unbleached, Jr.....	2.20	"	—
Bleached, Jr.....	3.20	"	—

Manila—per cwt.—C. l. f. a.

No. 1 Jute.....	11.25	@	—
No. 1 Manila Wrapping, 35 lb.....	6.00	"	6.25
No. 2 Manila Wrapping, 35 lb.....	5.75	"	6.00

Boards, per ton—

News	*46.00	@	—
Chip	*48.00	"	—
Sgl. Mla. Ll. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*63.00	"	—
Binders Boards....	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds	Ledgers
No. 1..	$10.55@$12.75	$11.70@$14.25
No. 2..	9.65 " 11.75	10.80 " 13.25
No. 3..	9.20 " 11.25	10.35 " 12.50
No. 4..	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper. Delivered in Zone 1:

No. 1 Glossy Coated...	$13.65@	$15.50
No. 2 Glossy Coated...	12.40 "	14.00
No. 3 Glossy Coated...	11.60 "	13.25
No. 4 Glossy Coated...	11.15 "	12.75
No. 1 Antique (watermarked)	10.25 "	11.75
No. 2 Offset.....	9.60 "	11.00
A Grade E. F.....	9.35 "	10.75
A Grade S. & S. C....	9.60 "	11.00
B Grade E. F.....	8.85 "	10.25
B Grade S. & S. C....	9.10 "	10.50
C Grade E. F.....	8.55 "	9.75
C Grade S. & S. C....	8.80 "	10.00
D Grade E. F.....	8.25 "	9.50
D Grade S. & S. C....	8.50 "	9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight, Not Exceeding OPA Allowances.

Bl. Softwood Sulphite.....	$86.00
Unbl. Softwood Sulphite.....	74.00
Bl. Hardwood Sulphite.....	83.50
Unbl. Hardwood Sulphite.....	71.50
Bl. Mitscherlich.....	81.00
Unbl. Mitscherlich ...	72.00 @ 82.00
N. Bleached Sulphate.....	86.00
S. Bleached Sulphate.....	79.00
N. Semi-Bleached Sulphate...	82.00
S. Semi-Bleached Sulphate....	75.00
N. Unbl. Sulphate.....	73.00
S. Unbl. Sulphate.....	63.50
Bl. Soda	72.00
Unbl. Soda	68.00
Groundwood	50.00

Transportation Allowances Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area).....	10.50
West Coast (out area).....	16.50

	50%-80% Air Dry Weight
Northeast	$11.50
Lake Central	11.50
Southern	14.00
West Coast (in area).....	9.50
West Coast (out area).....	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area).....	7.50
West Coast (out area).....	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices

Domestic Rags

New Rags (Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—New White, No. 1..	6.50	@	7.25*
Silesias No. 1.....	—	"	5.75*
New Unbleached...	6.75	"	7.50*
Blue Overall.....	—	"	5.50*
Fancy	—	"	3.50*
Washables	—	"	3.00*
Bleached Khaki Cuttings	—	"	4.25*
Unbleached Khaki Cuttings	—	"	3.50*

* OPA Maximum Prices.

PRICE & PIERCE
»»»»»»»»ltd•

Wood Pulp & Paper Agents

60 East 42 Street
New York, N. Y.

HOW OAKITE CLEANING HELPS MILLS ECONOMIZE ON MAINTENANCE!

How to Grind Calender Rolls More Accurately!

When you use Oakite Grinding Compound, more accurate calender roll grinding . . . closer tolerances . . . are assured. This is because the Oakite Grinding Coolant keeps the wheels free-cutting, helps prevent loading and reduce glazing to a minimum.

In addition to its ample cooling and lubricating properties, Oakite Grinding Compound is a definite factor in preventing rolls from rusting. Its economy and ease in making up will appeal to you and other thrift-minded mill men.

FREE 28-page booklet gives complete data on this and 40 other mill maintenance cleaning and related jobs! Write for YOUR copy TODAY!

OAKITE PRODUCTS, INC., 48A Thames St., NEW YORK 6, N. Y.
Technical Service Representatives in All Principal Cities of the United States and Canada

OAKITE Buy Bonds for Victory CLEANING
MATERIALS METHODS SERVICE FOR EVERY CLEANING REQUIREMENT

the modern means for
preparing coatings and
tub-sizings from starch

AMYLIQ

WALLERSTEIN COMPANY, INC.
180 MADISON AVENUE, NEW YORK

WORKING for LIBERTY

AFTER 116 YEARS

Continuous service to the paper industry today—we are devoting our engineering and manufacturing facilities to the production of machines or parts vital to the war and to victory. However your maintenance and repair requirements will receive our best attention.

THE SMITH & WINCHESTER
MANUFACTURING COMPANY
Plant and Offices at South Windham, Connecticut

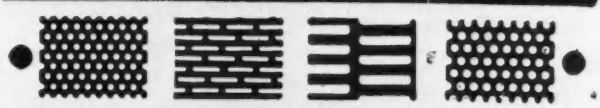
For High-Speed, Dependable
PAPER CONVERTING MACHINES
contact
POTDEVIN

Paper Bag Machines, Aniline & Oil-Ink Presses, Waxing, Gluing, Varnishing, Laminating Machines.

POTDEVIN MACHINE CO.
EST. 1893
1223 38th ST BROOKLYN, N.Y.

POTDEVIN

SCREENS of Perforated Metal



The Harrington & King PERFORATING Co.

5652 Fillmore St., Chicago 44, Ill. 114 Liberty St., New York 6, N. Y.

Old Rags

White, No. 1—			
Repacked	*3.80	ⓒ	—
Miscellaneous	*3.20	ⓒ	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Third and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.80	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

OPA Maximum Prices.

Foreign Rags

All Prices nominal

New Rags

New Dark Cuttings	2.25	ⓒ	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.25	ⓒ	4.35
Wool Tares, light	4.25	"	4.50
Wool Tares heavy	4.50	"	5.00
Bright Bagging	4.50	"	4.85
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	5.50	"	—
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	2.00	"	—

* OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	ⓒ —
No. 1 Hard White Envelope Cuts	3.12½	" —
No. 1 Hard White Shavings, unruled	2.87½	" —
No. 1 Hard White Shavings, ruled	2.50	" —
Soft White Shavings, one cut	2.87½	" —
No. 1 Soft White Shavings	2.50	" —
Soft White Shavings, Misc.	2.15	" —
No. 1 Fly Leaf Shavings	1.67½	" —
No. 2 Fly Leaf Shavings	1.12½	" —
No. 1 Groundwood Fly Leaf Shavings	1.25	" —
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	" —
Mixed Colored Shavings	.75	" —
Mixed Groundwood Colored Shavings	.90	" —
Overissue Magazines	1.67½	" —
No. 1 Heavy Books & Magazines	1.67½	" —
Mixed Books	.85	" —
No. 1 White Ledger	2.17½	" —
No. 2 Mixed Ledger, colored	1.87½	" —
New Manila Envelope Cuttings, one cut	2.87½	" —
New Manila Envelope Cuttings	2.65	" —
Extra Manilas	1.85	" —
Mixed Kraft, Env. & Bag Cuttings	2.75	" —
Kraft Envelope Cuttings	3.25	" —
Triple Sorted, No. 1 Brown Soft Kraft	2.50	" —
New 100% Kraft Corrugated Cuttings	2.25	" —
No. 1 Assorted Old Kraft	1.75	" —
New Jute Corrugated Cuttings	.90	" —
Old 100% Kraft Corrugated Containers	1.75	" —
Old Corrugated Containers	1.15	" —
Box Board Cuttings	.72½	" —
White Blank News	1.65	" —
Overissue News	.85	" —
No. 1 News	.75	" —
No. 1 Mixed Paper	.70	" —
Old Corrugated Containers	.82½	" —
Mill Wrappers	.85	" —

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	ⓒ	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17½	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill.)

Shirt Cuttings—	
New White No. 1	.07¼
New White No. 2	.05¼
Light Silesias	.05¼
Black Silesias, soft	.03½
New Unbleached	.07½
Washable Prints	.04¼
Washable No. 1	.03
Blue Overall	.05½
Cottons—According to grades—	
Washable shredding	.01¾
Fancy Percales	.04¼
New Black Soft	.03¼
Khaki Cuttings—	
Unbleachable Cotton Cuttings	.03½
Bleachable Cotton Cuttings	.04¼
Men's Corduroy	.03½
Ladies' Corduroy	.03
Cottonades	.03¼

Domestic Rags (Old)

White No. 1—Repacked	3.80	ⓒ	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
White No. 2—Repacked	2.90	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	"	3.50
No. 1 Clean bright—			
Sisal Strings			.04
No. 2 Clean bright—			
Sisal Strings			.03
Sisal Jute	.02½	"	.02¾
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	—	@	2.75
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	*4.25	"	
Mixed Rope	—	"	1.55
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	5.25	"	—
Jute Cer ✱Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	—	"	2.50
South American	—	"	3.00

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices

No. 1 Hard White Shavings, unruled	2.87½	ⓒ	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Jute Corrugated Cuttings	1.07½	"	—
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25		
Aust. Wool Pouches	—	"	3.25
New Zealand Wool Pouches	—	"	3.50
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Roofing Bagging	1.35	"	—
Misc.	2.15	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Box Board Cuttings	.72½	"	—
Kraft Corrugated Cuttings	2.25	"	—
Old Corrugated Containers	1.15	"	—
Overissue News	.85	"	—
No. 1 News	1.00	"	—

* OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	ⓒ	.04¾
Fancy Percales	.04¼	"	.05
New White No 1	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06¼
Underwear Cutters, Bleached	.06¼	"	.06¾
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¼
New Black Silesias	.03	"	.03½
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¼	"	.03½
New Canvas	.06¼	"	.06¾
B. V. D. Cuttings	.06¼	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—Repacked	3.80	ⓒ	—*
Miscellaneous	3.20	"	—*
White No. 2—Miscellaneous	2.65	"	—*
Twos and Blues, Repacked	2.20	"	—*
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—*
Miscellaneous	1.80	"	—*
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—*
No. 2	1.45	"	—*
No. 3	1.35	"	—*
No. 4	1.35	"	—*
No. 5, Quality A	1.35	"	—*
Quality B	1.20	"	—*
Quality C	.95	"	—*
Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

(F. o. b Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices.

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	1.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.62	"	—
No. 1 White Ledger	2.17½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—